EXHIBIT A

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION
(W.D. WA. AT SEATTLE - MDL)

PAMELA S. SILVEY, et al., Plaintiffs vs. SMITHKLINE BEECHAM CORP., Defendant	CASE NO. C-1-01-164 JUDGE HERMAN J. WEBER JUDGE BARBARA JACOBS ROTHSTEIN (MDL) MDL CASE NO. 1407

DEPOSITION OF: HARRY VAN LOVEREN, M.D.

BEFORE: Sheryl M. Williams, RPR, RMR
Notary Public

DATE: October 24, 2003

TAKEN BY: Defendant

PLACE: The University of South Florida
Department of Neurosurgery
4 Columbia Drive, Suite 730
Tampa, Florida 33606

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member, perhaps?

A. Yes.

Q. What I would like to do now, Doctor, is draw your attention to several pages of the medical record that is part of the Good Samaritan Hospital records. When a patient arrives at the hospital by EMS, or emergency medical service, do the EMS people typically provide the hospital with information about the patient's history?

A. Yes.

Q. And what I have provided you there, Exhibit Number 2, is a page of the EMS record, dated January 15 of 1998, which relates to Mrs. Silvey, document number 2, and I will represent to you the time on that is seven oh two a.m. (indicating). I am going to ask you a couple of questions about that document.

MR. TREGRE: What is the Bates number on that again?

MR. TABER: Two.

BY MR. TABER:

Q. Doctor, does the St. Bernard emergency medical service record indicate in terms of history whether Mrs. Silvey had been taking any medications that day?

A. It says none.

Q. All right. And does that record also indicate whether -- how high her blood pressure was during her time

immediately before arriving at Good Samaritan?

A. It gives three listings, vital signs, at seven twenty, seven thirty and seven thirty-five a.m.

Q. And did Mrs. Silvey have an elevated blood pressure at any of those times, according to that record?

A. No, her blood pressure was normal.

Q. Okay. The second document you have in front of you, Doctor, is a page from the emergency medical records from Good Samaritan Hospital, which does not have a Bates number on it, but this is the emergency -- handwritten emergency medical record, dated January 15, 1998, and it indicates -- does it indicate the arrival time in the upper right-hand corner?

A. Yes, it's zero seven thirty-seven.

Q. All right. And, Doctor, is this one of the documents that, perhaps, from time to time you, as the surgeon operating on her that day, would, perhaps, review in looking through her chart?

A. Actually, no. This is the type of document that the chief resident would review. They report directly to me.

Q. Okay. Their findings would be orally reported to you?

A. Yes.

Q. And is this piece of paper, which we have marked

as Exhibit 3 on the sticker, is this where some of the doctors in the emergency room would write down the results of their history and physical examination of Mrs. Silvey?

A. Yes.

Q. And have those doctors indicated whether, according to the history they obtained, Mrs. Silvey was taking any medications of any type on that day?

A. There's no medications.

Q. I would like to draw your attention to the following page. Mrs. Silvey was also seen by a trauma team, is that correct?

A. That's correct, because she was in an automobile accident.

Q. Okay. And what I am showing you now is Exhibit 4, which, again, is a copy of the emergency room or Trauma History and Physical Form taken at Good Samaritan. Does that also appear to be from January 15, 1998?

A. Yes.

Q. And is this another piece of paper where the doctors at the hospital write down the results of their history and physical examination of the patient?

A. Yes.

Q. And on this document do these doctors indicate the results of that history as to whether Mrs. Silvey was taking any medications that day?

A. They indicate that she was not taking any medications that day.

Q. Do they indicate whether she does have a history of smoking?

A. They indicate she does have a history of smoking.

Q. When a doctor takes a history from a patient, we discussed the importance of being thorough, when they ask her about medications, in your experience, do doctors typically ask about both prescription and nonprescription medications?

A. Yes.

Q. Next, Doctor, the typed version of the history and physical taken, the next page is a typed version of the prior page, that would be also Exhibit 4, page two and three. Is this another piece of paper that the doctors write the history and physical examination results on and the results of their examination?

A. Yes.

MR. TREGRE: Counsel, what is the Bates stamp on that document?

MR. TABER: I'm sorry, Calvin, 221. It's a two-page document, 221, 222.

BY MR. TABER:

Q. Doctor, in terms of the history that the trauma

doctors elicited on January 15th, 1998 at Good Samaritan, does it indicate who gave the history on that day, the Past Medical History section?

A. It says Past Medical History was obtained from the patient's husband.

Q. And does the history as obtained from the husband on this record indicate the results of the question as to whether she was taking any medications whatsoever that day?

A. It says medications, none.

Q. Oaky. Does the past-medical history give any indication as to whether Mrs. Silvey had been feeling ill in recent days?

A. It states that by the husband, it states, quote, "he, when questioned, did not recall the patient complaining of any recent headaches." And in the last sentence it says, quote, "The patient has no chronic medical or surgical problems, according to her husband."

Q. All right. And, Doctor, turn the page to the second page of that document. What was the results of her lung auscultation or listening to her lungs?

A. It says, quote, "Lungs: Clear to auscultation bilaterally."

Q. All right. Finally, Doctor, down in the Laboratory Studies, on a section of that piece of paper

indicating the results of their initial examination on January 15th, what was the initial impression made by the trauma team in terms of the cause of her symptoms?

A. It says, quote, "Minor motor vehicle accident with intracerebral hemorrhage secondary to aneurysm of AV malformation as the precipitating cause."

Q. Now, did you ultimately come to agree with that?

A. Yes.

Q. Now, next, Doctor, is Exhibit 5. Do you have that one?

A. Yes, I do.

Q. Exhibit 5 appears to be another history and physical examination results form. Is this a form that is filled out at the hospital when a patient is admitted?

MR. TREGRE: I'm sorry, Counsel, what is the Bates number?

MR. TABER: 265.

MR. TREGRE: I am sorry?

MR. TABER: 265.

MR. TREGRE: You are identifying it --

MR. TABER: Yes.

MR. TREGRE: And you provided this to me?

MR. TABER: Yes.

BY MR. TABER:

Q. Doctor, is page 265 of Defense Exhibit 5 an

anesthesia evaluation done January 15, 1998 for Mrs. Silvey?

A. Yes.

Q. And is this yet another piece of paper where the doctors wrote the results of their history and physical examination on that date?

A. Yes.

Q. And what was, according to this piece of paper, the results of their question as to whether Mrs. Silvey had been taking any medications?

A. No medications were taken that day.

Q. And this document, I gather, was filled out because by this time it was determined that Mrs. Silvey was going to need an operation?

A. That's correct.

Q. Okay. And you were going to be the surgeon to do that operation?

A. Yes.

Q. And before such an operation is done, there would be a consent form?

A. Yes.

Q. And that's Exhibit 6, page number 1428. Does this appear to be the consent form that was filled out on behalf of Mrs. Silvey on January 15, 1998 prior to your surgery?

A. Yes.

Q. And who signed that form?

A. Kenneth -- I guess that says Silvey. Kenneth E. Silvey, her husband.

Q. And does this document indicate, Doctor, that either you or someone on your behalf spoke with Mr. Silvey prior to her surgery?

A. Yes.

MR. TREGRE: I am going to assert an objection here, and add that the records that you forwarded to me that you indicated you would be using in this deposition, the records that you forwarded to me begin with the Bates stamp 1437.

MR. TABER: Well, Calvin -- off the record (indicating).

(Whereupon a discussion was held off the record).

BY MR. TABER:

Q. Doctor, I would like to wrap up this line of inquiry by asking you, in terms of either your memory, your review of the medical chart before today, or your review of the history and physical documents regarding Mrs. Silvey, is there any indication whatsoever in any of her records that she was taking a medication containing phenylpropanolamine before January 15, 1998?

A. Ask me that question again.

head without contrast, and the second study, Exhibit 8, is an angiogram.

Q. Okay. And what do these documents indicate in terms of her diagnosis?

A. Well, the first document, CAT scan of the head, simply documents that she has had a significant hemorrhage within the right side of her brain. The second document, the angiogram, documented that the cause of that hemorrhage is a complex shaped aneurysm of the right middle center of an artery of the brain.

Q. Okay. And in layman's terms, Doctor, what is an aneurysm?

A. An aneurysm is initially a weak area on the wall of a blood vessel, and over many years that weak area stretches like a balloon coming off the side of a hose. Depending on how thin or thick that wall where that aneurysm is will determine how large the aneurysm can become before it will burst.

Q. And the second test, which is the angiogram, can you just tell me in very basic terms what that test tells?

A. An angiogram is a method where we can specifically look at the blood vessels in the brain, and a catheter is passed into the artery in your groin and up your aorta, past your heart, into your head. Individually each of the major arteries in the brain is injected with

dye and pictures are taken in rapid sequence so it creates almost a moving picture of blood flowing through the vessels of the brain.

Q. Okay. And, Doctor, I notice on the angiogram, the third page, it indicates -- I'm sorry, on the CT scan, which is Exhibit 7, the second page, it indicates that the findings were discussed with the neurosurgeon, and that would have been you, I presume.

A. Yes.

Q. In terms of the aneurysm, do you agree with these reports that the cause of Mrs. Silvey's stroke was a ruptured aneurysm?

A. Yes.

Q. How long can you estimate that an aneurysm had been there?

A. Well, in one sense I know it's been there for many years, and in another sense you have to say it's a problem that started at birth.

Q. Okay. How so?

A. Most aneurysms are still felt to be birth defects in the sense that you have to be born with a weakness on the vessel wall, unless you have an underlying connective tissue disease, which she did not. In its current configuration, the configuration, size, shape that it had in 1998 prior to rupture, there would have to have

been a number of years that it was already present in that dimension, so it's a chronic problem.

Q. Okay. And also in terms of the specific anatomy of this aneurysm where this is on the angiogram, at the trifurcation point of the three major MCA branches, they indicate the size of twelve millimeters in length. Is this a small, medium or large size aneurysm?

A. Medium, and it is irregularly shaped.

Q. What is the significance of the shape of this aneurysm?

A. The more irregularly shaped an aneurysm is, the more it is felt that it is likely to rupture.

Q. Now, in terms of the smoking history that we discussed before and after, I will represent to you hypothetically, because I don't have it in front of me, that Mrs. Silvey has indicated that she began smoking at the age of fourteen, and that in terms of her pack-year history, that she smoked between one and one half packs every day from the age of fourteen until she was in the hospital on January 15, 1998 at age thirty-four.

MR. TREGRE: Objection. No basis.

MR. TABER:

Q. Okay. Based on that hypothetical, I ask you to assume it's true. Is that, in your mind, a significant smoking history?

A. Yes.

Q. When a patient who has an aneurysm such as Mrs. Silvey compounds that problem with smoking of that duration, can that cause an aneurysm to burst?

A. I don't know, nor does anyone else.

Q. Have there been -- Doctor, do you follow the medical literature in the field of neurologic surgery?

A. Yes.

Q. And I see Stroke Management on your shelf over there.

A. Yes.

Q. Is that a publication that you review from time to time?

A. Yes.

Q. Have there been a significant number of medical literature publications finding an association between smoking and subarachnoid hemorrhages?

A. Yes.

Q. And the last question about the CT scan and/or the angiogram, was there any indication on any of these documents that she had any vasculitis?

A. No.

Q. Was there any indication that she had any beating (phonetic) of the arteries?

A. No.

Q. Moving on, Doctor, to the operation that you did for Mrs. Silvey on January 15, 1998, I have handed you a copy of Exhibit 9, document Bates number stamp 1241, which is a copy of your Operative Report. Is this a documentation of the operation you performed for Mrs. Silvey on January 15th of 1998?

A. Yes.

Q. And in terms of your findings during that operation, did you, indeed, find an aneurysm in her arteries?

A. Yes.

Q. And you describe the aneurysm in this document as complex and bi-lobed, with a long base. What is the significance of those findings in terms of how long the aneurysm had been present?

MR. TREGRE: Object to form.

A. Well, this is an aneurysm that formed over a number of years.

BY MR. TABER:

Q. Was your operation successful for Mrs. Silvey?

A. Yes.

Q. The day after your operation for Mrs. Silvey, Exhibit 10 is the history and physical form filled out for follow-up of the surgery for that day. It is a Good Samaritan Hospital history form, number 268.

A. Correct.

Q. It would appear, Doctor, that this form was filled out by someone in the respiratory service in order to address her need for a breathing tube?

A. Yes.

Q. And why is it significant to these people, as they have documented, that she is a heavy smoker as is document here?

A. Because they are trying to account for a low oxygen level.

Q. Do patients who are heavy smokers have more problems after surgery in terms of breathing?

A. Yes.

Q. In fact, Doctor, was Mrs. Silvey's recovery complicated by her smoking?

A. Yes.

Q. And I am showing you now what has been marked as Exhibit 11, page 1445. Is this a note containing the records of your visits with Mrs. Silvey?

A. Yes.

Q. And I would like to ask you, first of all, about did you continue to follow Mrs. Silvey after her operation?

A. Yes.

Q. And you would visit her in the hospital?

A. Yes.

Q. On February 3rd, 1998, did you visit her?

A. Yes.

Q. And did you indicate there whether or not she was having any complications in her recovery and, if so, what the cause of that was?

A. Yes.

Q. And the cause was what?

A. Well, let me read it directly. Quote: "She is sedated with Ativan to achieve improved ventilation which is impaired by ARDS --" which stands for acute respiratory distress syndrome -- "felt to be secondary in part to pneumonia, in combination with an extensive smoking history."

Q. Okay. In terms of her overall picture in that recovery phase, as indicated on the January 26th note, was her primary problem her breathing?

A. Yes.

Q. Moving forward, then, Doctor, Mrs. Silvey was in the hospital for a period of time. Did she ultimately recover well from her surgery?

A. Yes.

Q. Did she ultimately have resolution of any impairments cognitively?

A. Yes.

Q. And in layman's terms, what does that mean?

A. Intellectual functions, such as memory, judgment.

Q. Okay. Then would you consider your treatment of Mrs. Silvey to have been quite successful?

A. Yes.

Q. And I would like to draw your attention to Exhibit 13. Is this a record of your office note at the time indicating that you had seen Mrs. Silvey in the Mayfield Clinic in followup to her hospitalization?

A. Yes.

Q. And what date did you see her for follow-up, according to that document?

A. April 20th, 1998.

Q. And by this time, Doctor, was Mrs. Silvey having an excellent recovery, in your opinion?

A. Yes.

Q. And did you, in fact, clear her to return to work at this time?

A. Yes.

Q. That's a document you signed?

A. Yes.

Q. In follow-up to all of these discussions, is her current prognosis in terms of what she had good?

A. It's been a long time since I have seen her, so

I do want to qualify that. As far as I know, her prognosis is good.

Q. Okay. Doctor, I would like to switch gears and ask you a few questions in follow-up and then we will be done. My questions are in some part open-ended questions, and what I would like you to do in answering these is only answer with those opinions that you hold to a reasonable degree of medical probability. Can you do that for me?

A. Yes.

Q. What type of stroke did Mrs. Silvey have?

A. A hemorrhagic stroke due to ruptured aneurysm.

Q. Okay. Do some doctors or publications refer to this as an aneurysm or subarachnoid hemorrhage?

A. Yes. This had the additional feature of having an intracerebral hemorrhage with it, so the bursting of the aneurysm was enough to put a large blood clot into the temporal lobe of the brain, itself.

Q. Could you show me where the intracerebral hemorrhage is documented?

A. I am referring to Exhibit number 7, page 456, CAT scan. Impression: Large right temporal hematoma associated with small right rim subdural hematoma and predominantly right-sided subarachnoid hemorrhage. So it is describing three different patterns of hemorrhage.

Q. Okay. The bulk of the records, Doctor, appear

to categorize her stroke as primarily a subarachnoid hemorrhage, is that fair?

A. Yes.

Q. Okay. And in terms of the medical literature, doctors do categorize strokes, correct?

A. Yes.

Q. If you were to categorize this stroke as between an intracranial hemorrhage or a subarachnoid hemorrhage, would you characterize it as a subarachnoid hemorrhage as noted on your medical records?

A. Yes.

Q. What was the cause of her stroke?

A. Ruptured aneurysm.

Q. And is it your opinion, Doctor, that her smoking history played a role in her risk factors for stroke?

A. I am uncertain.

Q. Did she have any other risk factors, according to the records, for stroke?

A. No.

Q. If you were to state the most likely cause of her stroke, based on the medical records, would that be smoking?

A. The most likely cause of her hemorrhagic stroke is being born with an aneurysm.

Q. What was the most likely, of the information you

have in the record, precipitating cause of an aneurysm to rupture?

A. Aneurysms can rupture without a significant precipitating cause.

Q. And smoking is an unproven cause?

A. Right.

Q. Is it fair to say, Doctor, that, according to the medical records, there is no evidence in this chart of any medication she took on January 15 caused her stroke?

MR. TREGRE: Object to form.

A. In my opinion, there is no evidence of that.

BY MR. TABER:

Q. Doctor, switching gears a little bit, can a headache and upper-neck pain be what is called a sentinel (phonetic) symptom before a stroke?

A. You keep using the word stroke, and this is really a hemorrhage.

Q. I do appreciate that. If I ask a question inartfully, please correct me.

A. All right.

Q. There are many types of strokes?

A. Yes.

Q. And the word stroke is a very broad category, and within the word stroke, this would include subarachnoid hemorrhages, intracranial hemorrhages,

court. You may continue, but that is going to be on the record.

MR. TABER: That's fine. I will respond after the doctor's deposition. I don't want to take up his time, but what I will do for you, Calvin, is withdraw the questions about Exhibit 15 so that you don't have any problem.

MR. TREGRE: No, those questions will not be withdrawn, but my objection will be noted.

MR. TABER: Okay.

BY MR. TABER:

Q. All right. Doctor, I would like to switch gears. We are just about done. Doctor, you have worked with Dr. Broderick before in Cincinnati?

A. Yes.

Q. In fact, you may have published records with him?

A. Yes.

Q. And back in January of 1998, as I understand, you and he would assist each other with patients in order to publish articles about various types of strokes?

A. Yes.

Q. And according to Exhibit 17, following your care and treatment, Mrs. Silvey participated in a study done by Dr. Broderick?

A. Yes.

Q. And on page --

MR. TREGRE: I am sorry, what page?

MR. TABER: Sorry, Calvin, 1422. It's the concent form, Bethesda & Good Samaritan.

MR. TREGRE: It's not in the records you provided to me.

MR. TABER: It most certainly is.

MR. TREGRE: What page?

MR. TABER: Document 1422.

MR. TREGRE: It's not in the medical records that you provided to me in anticipation of this deposition. Are you looking in the binder, Counsel, to see if you can locate it?

MR. TABER: Yeah, but it's a pretty big binder.

MR. TREGRE: I think you represented to me early on that this was located in the section that was designated as the records from Dr. Van Loveren's office, correct?

MR. TABER: We are talking about a different document. Let's go off the record for just a second.

(Whereupon a discussion was held off the record).

MR. TABER: Calvin, I am going to restart.

I don't see it from my quick review, but I am not going to keep the doctor waiting a long time. Please go ahead and object if you don't like it.

MR. TREGRE: I am going to state a continuing objection to that --

MR. TABER: Okay. That's fine.

MR. TREGRE: I have a continuing objection to every record that you are referring to that has not been provided to my office in anticipation of this deposition.

MR. TABER: Okay. For the record, I did bring more copies for you today, but you are present by phone, so I can't hand them to you.

BY MR. TABER:

Q. Doctor, let me just wrap it up so we don't keep you waiting all night. Did you happen to review the two articles about stroke that I sent down to you two weeks ago?

A. Not word for word.

Q. What I would like to ask you about is the document we have -- let me back up. Doctor, the consent form that was signed back in January of 1998, did Mrs. Silvey participate in a research study back in January or February of 1998 while under your care and treatment at Good Samaritan Hospital?

A. Yes.

Q. Would you look at what we have marked as Exhibit 17. Is that a consent form which on page two indicates that you have given her permission to take part in that study?

A. Right.

Q. And does that page two also indicate at the top under whose direction the study is going to be completed?

A. Yes.

Q. And who is indicated there?

A. Laura Sallerbeck.

Q. And also a doctor?

A. Dr. Joseph Broderick.

Q. Now, Doctor, if you could look at the document before that, which is Exhibit 16, which is a page number 707, does that form indicate whether, in fact, Ms. Sallerbeck or the stroke team from the University of Cincinnati was to interview Mrs. Silvey on February 13th of 1998?

A. Yes, it indicates that the stroke team did see her.

Q. Now, Doctor, did you ever become aware that Mrs. Silvey and her husband were interviewed as part of the stroke project on February 13th and 14th of 1998?

A. I knew that she was participating and being

interviewed, yes.

Q. How did you learn that information that she was going to be interviewed?

A. Well, I had to give consent.

Q. Back in 1998?

A. Right.

Q. And did you ever -- in terms of the interview that was done in the hospital, were you present for that?

A. No.

Q. Are you familiar, either through your personal involvement or through research or otherwise, with the types of interviews that were done back in February '98 by the stroke team?

A. No.

Q. Are you aware, Doctor, that both Mrs. Silvey and her husband in February of 1998 denied that she had ever used any medication with phenylpropanolamine in the two weeks before her subarachnoid hemorrhage?

A. No.

MR. TREGRE: Object to form.

BY MR. TABER:

Q. Are you aware of that now?

A. Yes.

Q. How are you now aware of that?

A. You just told me.

Q. Any other source?

A. No.

Q. Okay. To your knowledge, Doctor, were the interviews that were done in that study done in a manner to ensure the accuracy as well as possible?

MR. TREGRE: Objection.

A. Yes.

BY MR. TABER:

Q. Okay. Were any of the interviews ever done in your presence, Doctor?

A. No.

Q. Doctor, do you find any reference in Mrs. Silvey's medical records from the entire hospitalization from January and February of 1998 that would indicate that she ever took any medication with phenylpropanolamine in the two weeks before January 15, 1998?

A. No.

Q. Following up on the research study, Doctor, were the results of the stroke study we discussed specifically published as it relates to subarachnoid hemorrhages in the summer of 2003?

A. Yes.

Q. And is that a document we have marked as Exhibit 18 that you are looking at in front of you?

A. Yes.

MR. TREGRE: What is the Bates number on that?

MR. TABER: There is not a Bates number on there, Calvin.

MR. TREGRE: What number is that again?

MR. TABER: For identification purposes, this is an article from Stroke Magazine, the issue from summer of 2003, I believe July, entitled Major Risk Factors for Aneurysmal Subarachnoid Hemorrhage in the Young Are Modifiable.

BY MR. TABER:

Q. And, Doctor, this was authored by people that you know?

A. Yes.

Q. And some of the data obtained regarding Mrs. Silvey was incorporated into this document?

A. Yes.

Q. Did this -- how many patients were involved in this particular study, Doctor?

A. I have no idea. I would have to look at it.

Q. (Indicating).

A. Three hundred and twelve.

Q. Is that a significant size study in terms of patients with subarachnoid hemorrhage?

A. Well, it's a lot of people. I don't know how specific your question is.

Q. Okay. In the results section of the abstract, Doctor, does it indicate what years were utilized in studying these patients with subarachnoid hemorrhage?

A. Between 1994 and 1995 -- 1999, I'm sorry. '94 to '99.

Q. That would include the time when you treated Mrs. Silvey?

A. Yes.

Q. And if I could direct your attention now to the conclusion section of this document, the second page from the end, in terms of the results of that study, in part, are based on Mrs. Silvey's outcome. Does that study conclude whether Mrs. Silvey had any risk factors that would predispose her to a rupture of her aneurysm?

A. I don't think I understand that question.

Q. All right. It was not a very good question. Let me ask you to look at the fourth page. Again, this is Exhibit 18. Doctor, if I could direct your attention to the part of the section referencing smoking. Did this study that was done in part from a patient under your care and treatment conclude as to what the most significant modifiable risk factor for subarachnoid hemorrhage is?

A. Yes.

MR. TREGRE: I object to form.

BY MR. TABER:

Q. And what was the conclusion?

A. Their conclusion was that it was cigarette smoking.

Q. And they go on to indicate the results of those studies based on this large number of patients. Did these authors find any statistically significant link between the use of phenylpropanolamine, or PPA, and subarachnoid hemorrhage?

A. No.

Q. And let me clarify that. Phenylpropanolamine is commonly know as PPA, is it?

A. I don't know.

Q. Okay. Well, I am just speaking the wrong term, then. The P value, which is the degree of statistical significance of an association between Phenylpropanolamine and subarachnoid hemorrhage was point eight seven?

A. Correct.

Q. What is the significance of that P value?

A. That the association is just as likely to be rim (phonetic).

Q. Okay. And then going up a little further, Doctor, did these authors find any statistically significant link between cigarette smoking in their

subarachnoid hemorrhage patients, including Mrs. Silvey?

A. Yes.

Q. What was their conclusion?

A. That smoking was a significant risk factor.

Q. Okay. I have just a couple of more questions. You are a licensed physician in the state of Florida?

A. Yes.

Q. Do you spend more than fifty percent of your time in the clinical practice of neurosurgery?

A. Yes.

MR. TABER: Doctor, that's all I have for you. Thank you very much for your time. Mr. Tregre may have some questions for you.

CROSS EXAMINATION

BY MR. TREGRE:

Q. Yes, Doctor, I do have some follow-up questions for you. Just give me one second to review my notes. Do you recall personally asking Mrs. Silvey whether or not she took any over-the-counter medications?

A. No.

Q. Is there any record of you personally asking Mrs. Silvey in your medical records whether she took any over-the-counter medications?

A. No. As a matter of fact, when she arrived, I don't think she was coherent.

Q. Doctor, I want to ask you a few questions about the stroke study that Mr. Taber referred to.

A. Yes?

Q. In general, isn't it true that patients in stroke studies may not give a full medical history due to their inability to do so?

MR. TABER: Objection.

A. Well, in general, yes, that is true. That was supposed to be accounted for in the study.

BY MR. TREGRE:

Q. Okay. Would that also include a patient's ability to give his or her medication-use history?

A. Yes.

Q. And is it reasonable to conclude that in a stroke study that there is a degree of underreporting among the subjects studied or among the patients of whether they used any medication?

MR. TABER: Objection.

A. I have no way of knowing the answer to such a specific question about the study.

BY MR. TREGRE:

Q. Doctor, do aneurysms always rupture?

A. No.

Q. Doctor, I would also like to refer you to the medical records that were provided to you prior to the

CERTIFICATE OF OATH

STATE OF FLORIDA)

COUNTY OF PINELLAS)

I, the undersigned authority, certify that HARRY VAN LOVEREN, M.D., personally appeared before me and was duly sworn.

WITNESS my hand and official seal this 7th day of November, 2003.

SHERYL M. WILLIAMS
Notary Public - State of Florida

REPORTER'S DEPOSITION CERTIFICATE

STATE OF FLORIDA)

COUNTY OF PINELLAS)

I, SHERYL M. WILLIAMS, RPR, RMR, certify that I was authorized to and did stenographically report the deposition of HARRY VAN LOVEREN, M.D., that a review of the transcript was not requested; and that the transcript is a true and complete record of my stenographic notes.

I further certify that I am not a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of any of the parties' attorney or counsel connected with the action, nor am I financially interested in the action.

DATED this 7th, day of November, 2003.

SHERYL M. WILLIAMS
RPR, RMR

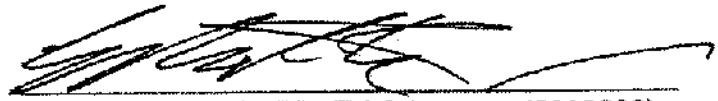
SHERYL M. WILLIAMS
My Comm Exp. 7/28/05
No DD 041430
Personally Known [ ] Other I.D.

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
WESTERN DIVISION
(W.D. WA. AT SEATTLE - MDL)

PAMELA S. SILVEY, et al., Plaintiffs, v. SMITHKLINE BEECHAM CORP., Defendant.	CASE NO. C-1-01-164 Judge HERMAN J. WEBER JUDGE BARBARA JACOBS ROTHSTEIN (MDL) MDL CASE NO. 1407 **RENEWED NOTICE OF DEPOSITION OF HARRY VAN LOVEREN, M.D.**

Defendant SmithKline Beecham Corporation hereby gives notice pursuant to Rule 30 of the Federal Rules of Civil Procedure that it will take the deposition of Harry Van Loveren, M.D., at The University of South Florida-Tampa, Department of Neurosurgery, 4 Columbia Drive, Suite 730, Tampa, Florida 33606 on Wednesday, October 22, 2003 at 2:00 p.m. to be recorded by stenographic and/or sound and video recording. The deposition will continue from day to day until completed before an officer duly authorized to conduct such a deposition.

Respectfully submitted,



ROBERT C. TUCKER, Trial Attorney (0013098)
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EDWARD E. TABER (0066707)
email: etaber@tuckerellis.com
TUCKER ELLIS & WEST LLP
1150 Huntington Building
925 Euclid Avenue
Cleveland, OH 44115
Telephone: (216) 592-5000
Telefax: (216) 592-5009

Attorneys for Defendant
SmithKline Beecham Corporation

CERTIFICATE OF SERVICE

The foregoing **Renewed Notice of Deposition of Harry Van Loveren, M.D.** was sent by facsimile and regular, postage prepaid U.S. Mail this 15th day of October, 2003, to:

Janet G. Abaray, Esq.
Calvin S. Tregre, Jr., Esq.
Lopez, Hodes, Restaino, Milman,
Skikos & Polos
312 Walnut Street
Suite 2090
Cincinnati, Ohio 45202

Attorneys for Plaintiffs

One of the Attorneys for Defendant
SmithKline Beecham Corporation

CLE 754068.1
76351/11990

May 29 02 09:55a Fire Department OIC 513-242-0305 p.2

ST. BERNARD FIRE DEPARTMENT

Run No. # 43 Date: 1/15/98

Name: Pamela Silvey Sex: M (F) Age/D.O.B.: 2-1-63
Address: 1311 Chase Ave. S.S.N.: 278-70-2511
City: Cinti State: OH Zip: 45223
Phone: Family Physician:

EMS Unit	Call Rec'd	Responding	At Scene
M91	0656	0658	0703
To Hospital	**At Hospital**	**Returning**	**At Qtrs**
0725	0737	0815	N/A

Situation Found: IN CAR
Chief Complaint: —
Medications: NONE
Allergies: NKDA

Location of Call: N I-75
Nature of Call: MVA
Responding From: Q Medic Response: 2
Other Responding Units: E91, 7L UNITS
Receiving Hospital: -
Communications: ☐ Phone ☐ Telemetry EKG Sent: Y / N
Base: UC MD: 43

HISTORY

- ☐ HEART DISEASE
- ☐ RESPIRATORY
- ☐ SEIZURES
- ☐ CANCER NONE
- ☐ OTHER:
- ☐ HYPERTENSION
- ☐ CVA/TIA
- ☐ DIABETES
- ☐ PSYCHOLOGICAL

PUPILS	RT	LT
Equal	✓	✓
Reactive	SL	SL
Dilated		
Constricted		
Unequal		

PHYSICAL FINDINGS

MENTAL STATUS
- ☐ ALERT & ORIENTED NORMAL
- ☐ DISORIENTED/CONFUSED
- ☒ RESPONDS TO VERBAL STIMULI ONLY
- ☐ RESPONDS TO PAINFUL STIMULI ONLY
- ☐ UNRESPONSIVE

SKIN COLOR
- ☒ NORMAL
- ☐ CYANOTIC
- ☐ PALE/ASHEN
- ☐ FLUSHED
- ☐ JAUNDICED

SKIN CONDITION
- ☐ NORMAL
- ☐ WARM/HOT
- ☒ COOL/COLD
- ☐ MOIST
- ☒ DRY

BREATH SOUNDS	RT	LT
Clear	✓	✓
Rales		
Rhonchi		
Wheezes		
Diminished		
Absent		

☐ Stridor

MEDICATIONS / DEFIBRILLATION / IV FLUIDS / EKG

TIME	MED / DEFIB / SOLN / ANGIO	DOSE / JOULES	ROUTE	MONITOR RHYTHM	INIT
0719	MONITOR	3 LD	ET	SINUS RHYTHM	ZC
0724	GLUCOMETER	120		"	TH
0724	IV (NS) 20/KO		(L) AC	"	KG

VITAL SIGNS

TIME	PULSE	B/P	RESP	O_2 SAT
0720	68R	104/70	24	96
0730	88R	108/78	24	97
0735	68R	104/78	24	97

BLS TREATMENT

- ☒ PATIENT ASSESSED
- ☐ TRANSPORT ONLY
- ☒ OXYGEN
  - ☐ CANNULA @ ____ LPM
  - ☐ SIMPLE MASK @ ____ LPM
  - ☒ COMPLEX MASK @ 15 LPM
  - ☐ OTHER @ ____ LPM
- ☐ VENTILATION
  - ☐ BVM
  - ☐ VENT @ RATE:
- ☐ AIRWAY INSERTION
  - ☐ ORAL
  - ☐ NASAL
  - ☐ EOA / PTL BY:
- ☒ PULSE OXIMETER
- ☐ CPR TIME
  - ☐ BY-STANDER
  - ☐ SQUAD
- ☐ BLEEDING CONTROL
- ☐ BANDAGING
- ☐ BURN CARE
- ☒ C-SPINE IMMOBILIZATION
  - ☒ C-COLLAR
  - ☒ C.I.D.
  - ☐ OTHER:
- ☒ SPINAL IMMOBILIZATION
  - ☐ XP-1 / KED
  - ☒ LONG BACKBOARD
  - ☐ SHORT BACKBOARD
  - ☐ SCOOP
  - ☐ OTHER:
- ☒ EXTRICATION MINUTES: RAPID
- ☐ SPLINTING
  - ☐ BOARD
  - ☐ TRACTION
  - ☐ AIR
  - ☐ VACUUM
  - ☐ OTHER:
- ☐ COLD PACK
- ☐ PASG/MAST TIME
  - ☐ IN-PLACE ONLY
  - ☐ LEGS ONLY INFLATED
  - ☐ FULLY INFLATED
- ☐ OB DELIVERY
- ☐ RESTRAINTS
- ☐ IPECAC AMOUNT:
- ☐ CRISIS INTERVENTION

ALS TREATMENT

- ☒ CARDIAC MONITOR
  - ☒ STANDARD ☐ 12-LEAD
- ☐ ENDOTRACHEAL INTUBATION
  - ET TUBE SIZE:
  - ☐ ORAL BY:
  - ☐ NASAL BY:
- ☐ CRICOTHYROTOMY BY:
- ☐ DEFIBRILLATION
- ☐ SYNCHRONIZED CARDIOVERSION
- ☐ PACEMAKER
  - OUTPUT:
- ☐ CHEST DECOMPRESSION
  - ☐ RT ☐ LT
- ☐ INTRAOSSEOUS INFUSION

PATIENT ASSESSMENT: PT FOUND UNRESPONSIVE IN MVA, APPARENTLY GLANCED MEDIAN BARRIER THEN INTO GUARDRAIL. PT UNRESTRAINED, DRIVERS WINDOW BROKE, WINDSHIELD & STEERING WHEEL IMPACT. SQUAD PERFORMED RAPID EXTRICATION & SPINAL IMM, RAPID TRAUMA ASSESSMENT INSIGNIFICANT, DETAINED = INCONTINENT, VOMITED AT SCENE (SQUAD SUCTIONED) PT FAILING ABCs, RAPID TRANSPORT. SLT INCREASE OF MENTAL STATUS ENROUTE

EMS CREW: 28, 26, 23

PSilvey-OH-St. Bernard FD-000002

MAY 29 2002 10:54 513 242 0305

EXHIBIT VAN LOVEREN 2

TRAUMA
CASE E 1617193-6
MRN 717115
GSH

GOOD SAMARITAN HOSPITAL
CINCINNATI, OHIO - PAGE 1 OF 3

EMERGENCY DEPARTMENT TRAUMA/CRITICAL CARE RECORD

Date _____ Arrival Time: 0237

Name Silvi, Pamela Age _____

Time of Incident: _____ Chief Complaint/Mechanism: UNRESTRAINED Driver MVA
Incontinent Urine & Stool. Glucose 120 mg/dl per Squad.
Minimal Damage to Auto

Triage Category
Critical (1)
Urgent (2)
Stable (3)

Allergies NKA
PMH: —
Meds: —

dT ☐ < 5 yrs ☐ > 5 yrs ☐ UNK

PREHOSPITAL: Squad St. Bernard from _____
O_2 MASK Intubated # _____ ☐ ET ☐ NT
C-Collar: ☒ Y ☐ N
Backboard: ☒ Y ☐ N
Monitor: ☐ Y ☐ N Rhythm Sinus
IV: Site and Size _____ IV fluid NS Amt received _____
Meds received: _____
Splints: _____

TRAUMA CONSULT ☐ ALERT ☒ NAME	NOTIFIED	ARRIVED
ED Attending	Pasalos	
Chief Resident	Shipe	0740
Resident	Banks	0741
Surgery Attending		
RN #1	Hillman	0737
RN #2	Sheets	0737
OR RN		
Anesthesia		
Respiratory	B Carroll	0740
ICU RN	Hunt (PAIFT)	0740
X-Ray	Hunt	0741
CT Scan Ordered: _____ Notified: _____ Responded _____ Arrived _____		

CONSULTATION SERVICE	NOTIFIED	ARRIVED
Neurosurgery Cohen		0756
Orthopedics		
Cardiothoracic		
Plastics		
ENT		
Social Service		
Chaplain		
Other		

PSilvey-OH-GoodSamaritan-000217

	0740	0800
EYE OPENING: Spontaneous 4, To voice 3, To Pain 2, None 1	2	2
VERBAL RESPONSE: Oriented 5, Confused 4, Inappropriate 3, Incomprehensible 2, None 1	3	3
MOTOR RESPONSE: Obeys Commands 6, Localizes (pain) 5, Withdraws (pain) 4, Flexion (pain) 3, Extension (pain) 2, None 1	5	5
TOTAL GLASGOW SCORE	10	10

REVISED TRAUMA	ARRIVAL	
GLASGOW COMA: 13-15: 4, 9-12: 3, 6-8: 2, 4-5: 1, 3: 0	10	
SYSTOLIC BP: >89: 4, 76-89: 3, 50-75: 2, 1-49: 1, 0: 0	4	
RESPIRATORY RATE: 10-29: 4, >29: 3, 6-9: 2, 1-5: 1, 0: 0	2	
TOTAL	16	

Modified Glasgow Scale for Children (4)

FINDING	SCORE
Eye Opening	
Spontaneous	4
To speech	3
To pain	2
None	1
Best Verbal Response	
Coos, Babies	5
Irritable cries	4
Cries to pains	3
Moans to pain	2
None	1
Best Motor Response	
Normal spontaneous movements	6
Withdraws to touch	5
Withdraws to pain	4
Abnormal flexion	3
Abnormal extension	2
None	1

A - Abrasion B - Laceration C - Contusion D - Amputation E - GSW F - Stabbings G - Open Fracture H - Closed Fracture I - Burn J - Cast Other

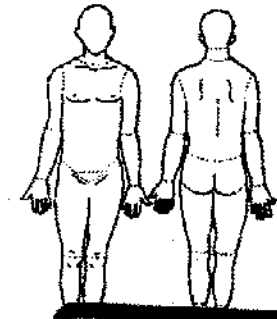


EXHIBIT
VAN LOEREN
3

ER-150 Rev. 4/2

Good Samaritan Hospital
375 Dixmyth Avenue / Cincinnati Ohio 45220-2489
(513) 872-1400

TRAUMA HISTORY AND PHYSICAL FORM
Page 1 of 2

TRAUMA CASE E 1617193 MRN 717115 GSH

NAME: Silvey, Pamela | ADMISSION DATE: 1/1/94 | ADMISSION TIME | AGE | SEX: F | RACE: C

CASE NO. | INJURY DATE: 1/1/94 | TIME OF INJURY | TRANSPORT MODE | REFERRING HOSPITAL

MECHANISM OF INJURY

☒ MVA (YES / NO)
SINGLE VEHICLE: ☒ ☐
DRIVER: ☒ ☐
FRONT SEAT: ☒ ☐
RESTRAINED: ☐ ☒
EJECTED: ☐ ☒
ROLLOVER: ☐ ☒
PEDESTRIAN: ☐ ☒

☐ MOTORCYCLE ☐ BICYCLE
HELMET (YES ☐ NO ☐)
VS. AUTO (YES ☐ NO ☐)
☐ FALL
DISTANCE: ____ FT.

☐ GUNSHOT
CALIBER: ____
RANGE: ____ FT.
☐ SHOTGUN
GAUGE: ____
RANGE: ____ FT.
☐ STAB WOUND
☐ ASSAULT

☐ BURN ☐ SPORTS
☐ CRUSH ☐ DIVING
☐ OTHER ____

SELF-INFLICTED INJURY ☐ Yes ☐ No
WORK RELATED INJURY ☐ Yes ☐ No

HISTORY

	Yes	No
LOC	☒	☐
ETOH	☐	☒
hemodynamic instability	☐	☒

Single car MVA. Hit guard rail driver side then passenger side

PAST MEDICAL HISTORY

	YES	NO	IF YES, EXPLAIN
CARDIAC	☐	☒	
PULMONARY	☐	☒	
RENAL	☐	☒	
DIABETES	☐	☒	
NEUROLOGIC	☐	☒	
VASCULAR	☐	☒	
TRAUMA	☐	☒	
SMOKING	☒	☐	
ETOH	☐	☒	
SURGERY	☐	☒	

OTHER:

☐ UNKNOWN

ALLERGIES
Ø

MEDICATIONS
Ø

PHYSICAL EXAM

INITIAL VITAL SIGNS
BP: 125/72 HR: 77 RR: ____ TEMP: SaO2 100%

CRANIOFACIAL Ø PEERL
EARS
EYES PERRL, disconjugate gaze
NOSE Ø
ORAL Ø
NECK nontender, no step off
CHEST CTA, nontender
ABDOMEN soft, nontender, nondistended
BACK
PELVIS Stable
RECTUM nl tone GUAIAC (−)
GENITALIA nl F
EXTREMITIES no apparent injuries

GLASGOW COMA SCALE / TRAUMA SCORE

GLASGOW COMA SCALE		Score	TRAUMA SCORE		Score
EYE OPENING: Spontaneous 4, To Voice 3, To Pain 2, None 1		2	GLASGOW COMA: 13-15 4, 9-12 3, 6-8 2, 4-5 1, 3 0		3
VERBAL RESPONSE: Oriented 5, Confused 4, Inappropriate 3, Incomprehensive 2, None 1		3	SYSTOLIC BP: > 89 4, 76-89 3, 50-75 2, 1-49 1, 0 0		4
MOTOR RESPONSE: Obeys Commands 6, Localized (pain) 5, Withdrawn (pain) 4, Flexion (pain) 3, Extension (pain) 2, None 1		5	RESPIRATORY RATE: 10-29 4, > 29 3, 6-9 2, 1-5 1, 0 0		4
TOTAL GLASGOW COMA SCORE (3-15)		10	TOTAL RTS (0-12)		11

VASCULAR

	CAROTID	BRACHIAL	RADIAL	FEMORAL	POPLITEAL	PEDAL
LEFT	2+		2+			2+
RIGHT	2+		2+			2+

PSilvey-OH-GoodSamaritan-000228

MEDICAL RECORDS COPY · PLACE ON CHART UNDER "PROGRESS NOTES" SECTION

EXHIBIT VAN LOVEREN 4 2 pages

JH 1252-1

GOOD SAMARITAN HOSPITAL
CINCINNATI, OHIO 45220

TRAUMA ADMISSION HISTORY AND PHYSICAL

SILVEY, PAMELA **194537**

Barbara Koenig, M.D.

DATE OF ADMISSION: 01/15/98

CHIEF COMPLAINT: Motor vehicle accident.

HISTORY PRESENT ILLNESS: The patient is a 34-year-old white female who reportedly left for work at the usual time this morning, driving a van. Approximately an hour or so later her husband, who was driving the same route to his place of employment, saw the van at the side of the road and pulled over. He found his wife slumped over in the driver's seat, apparently restrained. She was responsive but not coherent and not verbalizing appropriately. She seemed to be quite obtundent. There was evidence of minor damage to the van, which included a windshield or a side window and also damage externally to the van where she had hit the side guardrail. There was, however, minimal damage to suggest any high speed impact. Apparently the patient's husband summoned ambulance and she was transported with spine immobilization to Good Samaritan Hospital. Dr. Vincent Pangalos of the Emergency Department asked for a Trauma alert.

Upon patient's arrival, the patient a blood pressure of about 110 systolic but a heart rate of 60. She was showing some signs of attempting to respond verbally but inappropriately and she was reportedly moving her right upper and lower extremities but had some decorticate posturing on the left. The patient's level of consciousness and a dysconguate gaze and the decorticate posturing on the left led the physicians to intubate the patient with neuromuscular blockade and sedation.

After standard trauma evaluation and laboratory and x-ray studies were performed, the patient was transported to the C.T. scanner for C.T. scan of her head and abdomen. According to Dr. Banister, the patient's heart rate dropped to about 45 beats per minute and when she was given 0.5 mg of Atropine, her heart rate came up promptly but so did her blood pressure. When her blood pressure was 190 systolic, she was treated with Nitroglycerin IV. to control this pressure. She was also given, I believe, 25 grams of Mannitol IV. A Foley catheter had been previously placed as had a nasogastric tube, and her endotracheal tube was patent and assist ventilations were employed.

PAST MEDICAL HISTORY: Past medical history was obtained from the patient's husband. He when questioned did not recall the patient complaining of any recent headaches. He states that she has no history of seizures and there is no family history that he is aware of. The patient has no chronic medical or surgical problems, according to her husband.

MEDICATIONS: None.

ALLERGIES: The patient's husband states she is allergic to aspirin.

IMMUNIZATION STATUS/PERSONAL HABITS: Not ascertained at this time from the husband.

PHYSICAL EXAMINATION:
VITALS: Vitals signs were as indicated in the pertinent history.
HEENT: The patient did not have any evidence of external trauma to her head. Eyes: initially, they were reported as pupils of 5 mm with a dysconguate gaze and some reactivity. Extraocular movements could not be evaluated at that time. Tympanic membranes were clear and intact bilaterally. Mouth and oropharynx were atraumatic but her dentition is fairly poor for her age. An endotracheal tube was in place when I saw the patient.
Continued on next page.

GOOD SAMARITAN HOSPITAL
CINCINNATI, OHIO 45220

TRAUMA ADMISSION HISTORY AND PHYSICAL

194537

SILVEY, PAMELA

Page : 2

NECK: Unable to be evaluated for pain or other sensation due to the patient's level of cooperation and the medications (neuromuscular blockade and sedation) that she had received. There was, however, a cervical collar in place and no evidence of tracheal deviation, crepitus or subcutaneous emphysema.
LUNGS: Clear to auscultation bilaterally.
HEART: Regular rhythm at a borderline tachycardic rate without murmur or gallop.
CHEST: Stable on AP and lateral compression without crepitus or subcutaneous emphysema.
ABDOMEN: Soft, flat, apparently nontender. There were no masses or organomegaly appreciated. Bowel sounds were present but hypoactive. One could not elicit for rebound tenderness adequately due to the patient's level of consciousness. Pelvis was stable to AP and lateral compression.
RECTAL: Exam was performed by Dr. Banister and the patient had good sphincter tone despite the fact that the patient had been incontinent of stool and urine at the time of her initial evaluation. Foley catheter was placed.
EXTREMITIES: The patient had no evidence of external trauma to her extremities. She did have decorticate posturing on the left and spontaneous range of motion of her right upper and lower extremities. Sensation appeared to be grossly intact in the right lower extremity and probably in the left lower extremity at the time of the initial exam.
NEUROLOGICAL: The patient was responsive and attempted to verbalize but inappropriately. It is not clear as to whether she had any spontaneous eye opening and she was intubated when I saw her, so her Glasgow coma score was in the range of about 60.

LABORATORY STUDIES: Chest x-ray and lateral cervical spine films were within normal limits. A C.T. of the head was performed which demonstrated a right anterior temporal lobe hemorrhage, some subarachnoid hemorrhage and a very small subdural on that side with a mass effect and slight right-to-left shift. This bleed was thought to be due either to an aneurysmal bleed or an arteriovenous malformation and not thought to be due to a traumatic blow to the head. Neurosurgery had been consulted and was present to view the patient and the CAT scan at that time. CAT scan of the patient's abdomen was also obtained to rule out any intra-abdominal injury and this was interpreted as being negative or within normal limits with no free intraperitoneal hemorrhage or any solid organ injury. The rest of the patient's laboratory studies were entirely within normal limits.

IMPRESSION: Minor motor vehicle accident with intracerebral hemorrhage secondary to aneurysm or AV malformation as the precipitating cause. Right anterior lobe intracerebral bleed, small subarachnoid hemorrhage and small right subdural hemorrhage.

PLAN: Stat. neurosurgical consultation, immediate arteriography and possible surgical intervention by the neurosurgeons. Control of blood pressure and control of airway with proper oxygenation.

Barbara Koenig M.D.
Barbara Koenig, M.D.
mp
D: 01/15/98
T: 01/15/98

cc: Barbara Koenig, M.D.,Trauma Services11FG

Good Samaritan Hospital
375 Dixmyth Avenue / Cincinnati, Ohio 45220-2489
(513) 872-1400

DATE: 1/15/96

PRE - ANESTHESIA EVALUATION

PROCEDURE: 35yo pMCA → Crani For Aneurysm — Pam Silvey

PMH: ⊕ MVA — GCS – 10 T/15

⊕ Intracranial bleed → Ⓡ MCA — Trauma Score 11 T/15

CXR – wnl

Lat C-spine – OK

still in collar

PREVIOUS ANESTHESIA PROBLEMS: [ ] None

MEDS: (✓ - taken today) Ø

ALLERGIES: Ø NKA

PE: 105/70 77

WT:

DENTITION:

AIRWAY:

ETT in place

LABS: PT/PTT - 11.0/25.7 4.4 35 136/4.6 / 101 / 10 / 0.8 / 107

ASA:

PLAN: ______________anesthesia discussed; major risks/alternatives/benefits understood and accepted. All questions answered. The patient's postoperative destination was discussed.

HISTORY, PHYSICAL, PHYSICIANS PROGRESS, CONSULTATION NOTES & DISCHARGE SUMMARY

3566 Rev 11/96

EXHIBIT VAN LOVEREN 5

MAYFIELD CLINIC
PROCEDURAL CONSENT FORM

State law requires physicians to inform patients of risks associated with your contemplated surgery or medical procedure. This form is simply a confirmation that we have discussed your contemplated operation or medical procedure and have given you sufficient information upon which to make a decision.

I, Pam Silvey, give my consent to the following procedures or treatments:

Craniotomy & clipping of aneurysm, & removal of clot

to be performed by Dr. Van Loveren & Associates

The nature of my illness/injury and purpose of these procedures/treatments have been explained to me. Anesthesia has certain risks which you should discuss with the anesthesiologist and your personal physician. Risks of this procedure, include:

- ✓ Death
- ✓ Brain Damage
- ✓ Quadriplegia (Paralysis of all arms and legs)
- ✓ Paraplegia (Paralysis of both legs)
- ___ Loss of Organ (including bowel and/or bladder problems)
- ___ Loss of Arm or Leg
- ___ Loss of function of Organ
- ✓ Loss of function of arm or leg
- ✓ Scars
- ✓ Stroke and/or paralysis
- ✓ Blindness and/or double vision (and/or other vision problems)
- ✓ Hemorrhage (bleeding can be severe)
- ✓ Infection
- ✓ Nerve Damage

} All of these are possible; however, unlikely.

___ Other complications of infrequent nature: stroke, coma, death, need for further surgery

___ Pain

Other: _____

These have been fully explained to me. I have been informed of reasonable alternate methods of treatment and the advisability of the recommended procedures/treatments. All questions I have asked have been answered to my satisfaction. I recognize that the practice of medicine is not an exact science and that it is not reasonable to expect the physician to be able to anticipate or explain all risks and complications of the procedures/treatments. I understand that no guarantees have been made to me about the results of any procedures/treatments.

Signature of Patient: _____ Date: _____

Signature of Relative (Where required): Kenneth E. Silvey Date: 1-15-98

Signature of Representative (Where required): _____ Date: _____

Witness: _____ Date: 1/15/98

COMMUNICATIONS PRE-CONSENT PKG 10-11-96

EXHIBIT VAN LOVEREN 6

PSilvey-OH-Good Samaritan-001428

GOOD SAMARITAN HOSPITAL
375 DIXMYTH AVENUE
CINCINNATI,OHIO 45220

DEPARTMENT OF RADIOLOGY
CAT SCAN REPORT

NAME..... SILVEY,PAMELA S
CAT : .. 1849379
MRN..... 194537
LOCATION.. 12C 1252 - 01
XRAY #..... 09-291934

D.O.B..... 02/01/963 AGE.. 034
PAT TYPE.. B
REF. BY. 1 VANLOVEREN, HARRY M.D.
2 PANGALOS, VINCENT M.D.

ADM DIAGNOSIS.... SUBARACHNOID HEMMORAGE
PERTINENT SYMPTOMS
TRAUMA

REQ. #	PROCEDURE	PERF. DT/TM	REQ. DT/TM
R4927417	HEAD W/O & W	01/15/98 0812	01/15/98 0806

****
* FINAL REPORT *
****

DICT. BY.. GASKILL, MARY F M.D.

DATE/TIME. 01/15/98 1503

TRAN. BY... SRS
DATE/TIME.. 01/15/98 1616
PROOF READ. GASKILL, MARY F M.D.
DATE/TIME.. 01/15/98 1650

PROCEDURE ON SILVEY,PAMELA S 01/15/98 0812

HEAD CT WITHOUT CONTRAST:

FINDINGS: THE PATIENT IS A 34-YEAR-OLD WOMAN INVOLVED IN AN UNWITNESSED, MINOR TRAFFIC ACCIDENT.

A LARGE, APPROXIMATELY 3.5 CM HEMORRHAGE IS NOTED IN THE RIGHT ANTERIOR TEMPORAL LOBE. SUBARACHNOID HEMORRHAGE IS PRESENT PRIMARILY IN THE RIGHT SYLVIAN FISSURE AND SUPRASELLAR CISTERN. A SMALL, RIM RIGHT FRONTOPARIETAL SUBDURAL HEMATOMA IS NOTED. THERE IS MODERATE MASS EFFECT NOTED WITH COMPRESSION OF THE THIRD AND RIGHT LATERAL VENTRICLES AND APPROXIMATELY 1 CM MIDLINE SHIFT TO THE LEFT. THE FOURTH VENTRICLE IS PATENT. THERE IS MILD DILATATION OF THE LEFT TEMPORAL HORN. NO OBVIOUS FRACTURES ARE IDENTIFIED.

IMPRESSION:

1. LARGE, RIGHT TEMPORAL HEMATOMA ASSOCIATED WITH SMALL RIGHT, RIM SUBDURAL HEMATOMA AND PREDOMINANTLY RIGHT-SIDED SUBARACHNOID HEMORRHAGE. DUE TO THE PATTERN OF HEMORRHAGE AND THE RELATIVELY MINOR LEVEL OF TRAUMA, THE POSSIBILITY OF AN UNDERLYING VASCULAR

* * * RESULT CONTINUED ON NEXT PAGE * * *

RAD

* * * CHART COPY * * *

DPO-12

GOOD SAMARITAN HOSPITAL
375 DIXMYTH AVENUE
CINCINNATI,OHIO 45220

DEPARTMENT OF RADIOLOGY
CAT SCAN REPORT

NAME..... SILVEY,PAMELA S
CASE #.... 1849379
MRN..... 194537
LOCATION.. 12C 1252 - 01
XRAY #..... 89-291934

D.O.B..... 02/01/963 AGE.. 034
PAT TYPE.. D
REF. BY. 1 VANLOVEREN, HARRY M.D.
2 PANGALOS, VINCENT M.D.

ADM DIAGNOSIS.... SUBARACHNOID HEMMORAGE
PERTINENT SYMPTOMS
TRAUMA

REQ. #	PROCEDURE	PERF. DT/TM	REQ. DT/TM
R4927417	HEAD W/O & W	01/15/98 0812	01/15/98 0806

****
* FINAL REPORT CONTINUED *
****

DICT. BY.. GASKILL, MARY F M.D.
DATE/TIME. 01/15/98 1503

TRAN. BY... SRS
DATE/TIME.. 01/15/98 1616
PROOF READ. GASKILL, MARY F M.D
DATE/TIME.. 01/15/98 1650

PROCEDURE ON SILVEY,PAMELA S 01/15/98 0812

LESION SUCH AS AN ANEURYSM OR MALFORMATION SHOULD BE CONSIDERED.

2. MODERATE MASS EFFECT WITH MIDLINE SHIFT.

THE ABOVE FINDINGS WERE DISCUSSED WITH NEURAL SURGEON ON 1-15-98.

F1:D7

* * * CHART COPY * * *

RAD

DPO-12

GOOD SAMARITAN HOSPITAL
375 DIXMYTH AVENUE
CINCINNATI,OHIO 45220

DEPARTMENT OF RADIOLOGY
SPECIAL PROCEDURE REPORT

NAME..... SILVEY,PAMELA S
CASE #.... 1849379
MRN..... 194537
LOCATION.. 12C 1252 - 01
XRAY #..... 89-291934

D.O.B..... 02/01/963 AGE.. 034
PAT TYPE.. D
REF. BY. : VANLOVEREN, HARRY M.D.

ADM DIAGNOSIS.... SUBARACHNOID HEMMORAGE
PERTINENT SYMPTOMS
BLEED

REQ. #	PROCEDURE	PERF. DT/TM	REQ. DT/TM
R4927563	ANGIOGRAM/CAROTID, BILATERAL	01/15/98 0900	01/15/98 0922
R4927999	ANGIOGRAM/VERTEBRAL	01/15/98 1100	
R4927998	ANGIOGRAM/VERTEBRAL	01/15/98 1100	

****
* FINAL REPORT *
****

DICT. BY.. GASKILL, MARY F M.D.
DATE/TIME.. 01/15/98 1406

TRAN. BY... RFH
DATE/TIME.. 01/15/98 1405
PROOF READ. GASKILL, MARY F M.D.
DATE/TIME.. 01/15/98 1652

PROCEDURE ON SILVEY,PAMELA S 01/15/98 0900

CEREBRAL ANGIOGRAM:

THE PATIENT IS A 34 YEAR OLD WOMAN INVOLVED IN A MINOR MOTOR VEHICLE ACCIDENT WHO PRESENTED WITH A LARGE RIGHT TEMPORAL HEMORRHAGE WITH ASSOCIATED SMALL RIGHT SUBDURAL HEMATOMA AND RIGHT SIDED SUBARACHNOID HEMORRHAGE. UNDERLYING VASCULAR MALFORMATION WAS SUSPECTED DUE TO THE PATTERN OF HEMORRHAGE AND RELATIVELY MINOR TRAUMA. INFORMED CONSENT WAS OBTAINED FROM THE PATIENT'S HUSBAND.

CEREBRAL ANGIOGRAM WAS PERFORMED VIA RIGHT FEMORAL APPROACH UTILIZING A 5 FRENCH SHEATH, 5 FRENCH JB-1 CATHETER, REMOVABLE CORE GUIDEWIRE AND ANGLED GLIDE WIRE.

RIGHT COMMON CAROTID ARTERY INJECTION: INTRACRANIAL FILMING DEMONSTRATES AN ANEURYSM AT THE RIGHT MIDDLE CEREBRAL ARTERY TRIFURCATION. THE ANEURYSM APPEARS TO HAVE THREE PROMINENT LOBULATIONS AND POINTS INFERIORLY AND SLIGHTLY ANTERIORLY. THE ANEURYSM LIES AT THE TRIFURCATION POINT OF THREE MAJOR MCA

* * * RESULT CONTINUED ON NEXT PAGE * * *

RAD

* * * CHART COPY * * *

EXHIBIT
VAN LOVEREN
5

GOOD SAMARITAN HOSPITAL
375 DIXMYTH AVENUE
CINCINNATI,OHIO 45220

DEPARTMENT OF RADIOLOGY
SPECIAL PROCEDURE REPORT

NAME..... SILVEY,PAMELA S
CASE #.... 1049379
MRN..... 194537
LOCATION.. 12C 1252 - 01
XRAY #..... 89-291934

D.O.B.... 02/01/963 AGE.. 034
PAT TYPE.. B
REF. BY. 1 VANLOVEREN, HARRY M.D.

ADM DIAGNOSIS.... SUBARACHNOID HEMMORAGE
PERTINENT SYMPTOMS
BLEED

REQ. #	PROCEDURE	PERF. DT/TM	REQ. DT/TM
R4927563	ANGIOGRAM/CAROTID, BILATERAL	01/15/98 0900	01/15/98 0922
R4927999	ANGIOGRAM/VERTEBRAL	01/15/98 1100	
R4927998	ANGIOGRAM/VERTEBRAL	01/15/98 1100	

****
* FINAL REPORT CONTINUED *
****

DICT. BY.. GASKILL, MARY F M.D.
DATE/TIME. 01/15/98 1406

TRAN. BY... RFH
DATE/TIME.. 01/15/98 1405
PROOF READ. GASKILL, MARY F M.D
DATE/TIME.. 01/15/98 1652

PROCEDURE ON SILVEY,PAMELA S 01/15/98 0900

BRANCHES. THE NECK OF THE ANEURYSM APPEARS WIDE AND MAY INVOLVE THE PROXIMAL PORTION OF A RIGHT M2 BRANCH. A SMALLER M2 BRANCH FILLS SLIGHTLY LATER AND MAY ARISE FROM OR NEAR THE BASE OF THE ANEURYSM. THE ANEURYSM MEASURES APPROXIMATELY 12 MM IN GREATEST LENGTH. THE REMAINDER OF THE RIGHT INTERNAL CAROTID ARTERY IS UNREMARKABLE. NO OTHER ANEURYSMS ARE SEEN. NO STENOSIS ARE PRESENT.

RIGHT BRACHIOCEPHALIC INJECTION: A BLOOD PRESSURE CUFF WAS PLACED ON THE RIGHT ARM DURING INJECTION OF RIGHT BRACHIOCEPHALIC ARTERY. THE DISTAL RIGHT VERTEBRAL ARTERY IS VISUALIZED. THE ORIGIN OF RIGHT PICA IS IDENTIFIED AND APPEARS NORMAL. NO ANEURYSMS ARE IDENTIFIED.

LEFT VERTEBRAL INJECTION: THE LEFT VERTEBRAL ARTERY IS DOMINANT WITH A PATENT ORIGIN. THE VESSEL WAS SELECTIVELY CATHETERIZED USING ROAD MAP TECHNIQUE. THE DISTAL LEFT VERTEBRAL AND BASILAR ARTERY ARE PATENT. A SMALL AMOUNT OF REFLUX DOWN THE RIGHT VERTEBRAL IS PRESENT. NO ANEURYSMS OR VASCULAR MALFORMATIONS

* * * RESULT CONTINUED ON NEXT PAGE * * *

RAD

* * * CHART COPY * * *

DPO-12

GOOD SAMARITAN HOSPITAL
375 DIXMYTH AVENUE
CINCINNATI,OHIO 45220

DEPARTMENT OF RADIOLOGY
SPECIAL PROCEDURE REPORT

NAME..... SILVEY,PAMELA S
CASE #.... 1849379
MRN..... 194537
LOCATION.. 12C 1252 - 01
XRAY #..... 89-291934

D.O.B..... 02/01/963 AGE.. 034
PAT TYPE.. B
REF. BY. : VANLOVEREN, HARRY M.D.

ADM DIAGNOSIS.... SUBARACHNOID HEMMORAGE
PERTINENT SYMPTOMS
BLEED

REQ. #	PROCEDURE	PERF. DT/TM	REQ. DT/TM
R4927563	ANGIOGRAM/CAROTID, BILATERAL	01/15/98 0900	01/15/98 0922
R4927999	ANGIOGRAM/VERTEBRAL	01/15/98 1100	
R4927998	ANGIOGRAM/VERTEBRAL	01/15/98 1100	

****
* FINAL REPORT CONTINUED *
****

INT. BY.. GASKILL, MARY F M.D.

DATE/TIME. 01/15/98 1406

TRAN. BY... RFH
DATE/TIME.. 01/15/98 1405
PROOF READ. GASKILL, MARY F M.D
DATE/TIME.. 01/15/98 1652

PROCEDURE ON SILVEY,PAMELA S 01/15/98 0900

ARE SEEN.

LEFT COMMON CAROTID ARTERY INJECTION: THE DISTAL INTERNAL CAROTID ARTERY AND ITS BRANCHES ARE PATENT. NO ANEURYSMS OR VASCULAR MALFORMATIONS ARE IDENTIFIED.

IMPRESSION:

APPROXIMATELY 12 MM. TRI-LOBED ANEURYSM OF THE RIGHT MIDDLE CEREBRAL ARTERY TRIFUCATION AS DESCRIBED ABOVE.

P1:D7,P2:D7,P3:D7

RAD .....

* * * CHART COPY * *

GOOD SAMARITAN HOSPITAL
Cincinnati, Ohio 45220

OPERATIVE REPORT

1252-1
194537

SILVEY
~~SYLVEY,~~ PAMELA
HARRY R. VANLOVEREN, M.D.

DATE OF OPERATION:

PREOPERATIVE DIAGNOSIS: 1. Subarachnoid hemorrhage, right ruptured MCA aneurysm.

POSTOPERATIVE DIAGNOSIS: Same.

OPERATION PERFORMED:
1. Right frontotemporal craniotomy.
2. Evacuation of sylvian fissure hematoma.
3. Clipping of MCA aneurysm.

SURGEON: Harry R. VanLoveren, M.D.

ASSISTANTS: ANDREW J. KOKKINO, M.D., Michael Link, M.D.

ANESTHESIA: General anesthesia

OPERATIVE INDICATIONS: This is a young woman found unresponsive in her car one hour after leaving home for work. She suffered subarachnoid hemorrhage with hematoma in the sylvian fissure and the right temporal lobe secondary to ruptured MCA aneurysm.

Patient identification, lesion identification and localization were confirmed on the day of surgery by patient examination, record review, and review of radiographic studies.

DETAILS OF OPERATION: The patient was taken to the operating room and placed under general anesthesia with endotracheal intubation. She was placed on the operating room table supine with the head in three pin radiolucent fixation rotated to the left. The thorax was slightly elevated. All pressure points were padded and the patient appropriately secured to the table. Prophylactic antibiotics and anticonvulsants were administered. Brain relaxation was supplemented with hyperventilation and osmotic diuresis and gravity. Brain protection was administered by Anesthesia Department.

The right frontotemporal area was shaved, prepped and draped as a sterile field as was the right groin for intraoperative angiography. The scalp incision began at the tragus and followed the hair line to the midline. The myocutaneous flap was reflected inferiorly and retained. Bur holes were placed in the bone and a frontotemporal bone flap elevated with the Midas-Rex instrumentation. The dura was opened and reflected inferiorly. The entire intradural phase of the operation was performed with the aid of the operating microscope, microsurgical technique and instrumentation.

The brain was quite red. There was subdural hematoma and significant brain swelling. The temporal lobe was entered directly and extensive hematoma evacuated to create some relaxation. The sylvian fissure was then dissected along with the anterior temporal lobe until the aneurysm was identified. The aneurysm was complex and bi-lobed. On dissection, it was found that the M-1 entry vessel had a long base with the aneurysm. The two M-2 exit vessels were

GOOD SAMARITAN HOSPITAL
Cincinnati, Ohio 45220

OPERATIVE REPORT

SYLVEY, PAMELA

PAGE: 2

partially incorporated into the aneurysm neck and/or fundus. This necessitated a clip application that maintained a small aneurysm rest to allow distal flow to continue. We used a slightly curved non-feromagnetic Yassergill clip. The intraoperative angiogram demonstrated patency of the vessels and, in fact, showed no significant aneurysm rest although we know that one was retained. The aneurysm rest was wrapped with cotton.

After irrigation and hemostasis and further evacuation of temporal hematoma, the wound was closed. The dura was reapproximated with interrupted Vicryl sutures, the bone was replaced with titanium plates and screws. Retention sutures were placed in the dural edge. The myocutaneous flap was closed over the Jackson-Pratt drain using interrupted Vicryl sutures and staple approximation of skin. Sterile dressing and head wrap were applied and the patient returned to the recovery room in stable condition.

Harry van Loveren M.D.

HARRY R. VANLOVEREN, M.D.

HV/47/3640
D: 01/16/98
T: 01/17/98
(cclist)

CC: Harry R. VanLoveren, M.D.

Good Samaritan Hospital
3217 Clifton Ave. / Cincinnati, Ohio 45220-2489
(513) 872-1400

1252

SILVEY, PAMELA S
1849379-1 034
MRN 000000194537
DR. VANLOVEREN, HARRY R
01/1

1/16/98 Trauma
AFVSS
Abd soft
Pt somewhat comfortable, to surgery
Pt to OR yesterday for (R) MCA
ø further injuries.
Trauma will sign off.
Plan per Neurosurg.
Following few commands.
[signature]
[signature] MD

RESPIRATORY SERVICES DEPT.
SPONTANEOUS VENTILATORY PARAMETERS

PATIENT: SiLVEY
DATE: 1-16-98
M.V. 4.75 liters RR 18 BPM
TV 263 ml. NIF 28 CWP
RR/TV 68 VC ____ ml
THERAPIST [signature]

1/16 Pulm.
34 yo WF c̄ recent SAH 2° aneurysm. Clipped yesterday
CT head shows some edema. On decadron · mannitol · (
dilantin · nimotop. Fisher grade 3.
fluids @ 75cc/hr c̄ good u.o.
levophed @ 20μ c̄ SBP 110-120 range.
Sedated c̄ sublimaze.
Breathing c̄ CPAP alone (TV 250 RR 14 : pO2 80 pH 7.3?)
PMH: heavy smoker
VSS. AF Gen: sedate ø HEENT. ø JVD Cv. regular @92 ? (m).
Lungs. CTA Abd. soft Ext. ø edema / mottling
Weaning parameters acceptable. TCD's scheduled for am.
Imp: S/p SAH c̄ clipping. ? 1° brain edema vs ischemia 2° vasospasm. Currently tx'd for both
Plan: √ TCD's in am. If ↑ will place central line vs swan to advance pressors c̄ maximize volume. If not ↑, will lighten sedation c̄ attempt extubation.
[signature]

G-273 (REV. 8/85)

HISTORY, PHYSICAL, PHYSICIAN PROGRESS, CONSULTATION NOTES & DISCHARGE SUMMARY

EXHIBIT
VAN LOVEREN
10

PSilvey-OH-GoodSamaritan-000268

Pam Silvey
Progress Note
January 19, 1998

Pam Silvey was evaluated in Neuro ICU. She remains neurologically intact without evidence of overt vasospasm. She will continue routine post operative care, this is day 4 subarachnoid hemorrhage. H. van Loveren, M.D.

Pam Silvey
Progress Note
January 26, 1998

Pam Silvey was evaluated in Neuro Intensive Care and discussed with the resident and nursing staff. Neurologically she remains intact and a follow up angiogram did not demonstrate vasospasm. Her primary problem is with poor oxygenation. She is supported by intubation and ventilation and is being treated by Dr. Hayner, our neuro-intensivist. H. van Loveren, M.D.

Pam Silvey
Progress Note
January 27, 1998

Pam Silvey was evaluated in Neuro Intensive Care. She was discussed with her family as well. She remains neurologically quite stable and obeys commands easily. Her main problems are ventilatory. We are able at this time to begin weaning her ventilation and hopefully proceed towards extubation. H. van Loveren, M.D.

Pam Silvey
Progress Note
January 29, 1998

Pam Silvey was evaluated in Neuro Intensive Care and discussed with our neurointensivist, Dr. Parker. She has not met ventilatory weaning criteria. We have plans to perform a tracheostomy so that we can progress her rehabilitation. H. van Loveren, M.D.

Pam Silvey
Progress Note
January 31, 1998

Pam Silvey was evaluated. She has had no complications from tracheostomy. Dr. Hayner continues to work with her ventilatory support. She has been recovering from the ileus with return of a more normal bowel routine, even though her abdomen remains somewhat distended. H. van Loveren, M.D.

Pam Silvey
Progress Note
February 1, 1998

Pam Silvey was evaluated. She is stable with tracheostomy, but continues to have difficulties with ARDS. The neurointensivists are managing ventilation. H. van Loveren, M.D.

Pam Silvey
Progress Note
February 3, 1998

Pam Silvey was evaluated in Neuro Intensive Care and discussed with Dr. Parker, Neuro-Intensivist. She is sedated with Ativan to achieve improved ventilation which is impaired by ARDS, felt to the secondary in part to pneumonia, in combination with an extensive smoking history. Neurologically she remains relatively unchanged. H. van Loveren, M.D.

EXHIBIT
VAN LOVEREN
11

GOOD SAMARITAN HOSPITAL
Cincinnati, Ohio 45220

DISCHARGE SUMMARY

SILVEY, PAMELA 194537
STEVEN S. WUNDER, M.D.

DATE OF ADMISSION: 02/21/98

DATE OF DISCHARGE: 02/27/98

FINAL DIAGNOSES:

1. Subarachnoid hemorrhage.
2. Right MCA aneurysm with clipping.
3. Respiratory failure.
4. Acute respiratory distress syndrome.
5. Tracheostomy.
6. Gait disturbance.
7. Resolved hemiparesis.
8. Resolved cognitive impairment.
9. Status post tracheostomy removal.

HISTORY OF PRESENT ILLNESS: This 34-year-old female was admitted to Good Samaritan Hospital on 01/15/98. She presented with increasing confusion. She had an automobile accident. When she came in, she was noted to have a large subarachnoid hemorrhage on the right. Work-up showed evidence of a right MCA aneurysm. She underwent craniotomy and clipping. She did well in this regard. Postoperatively, she had pneumonia and ARDS. She was managed by Dr. Parker. She had a tracheostomy.

HOSPITAL COURSE: From a respiratory standpoint, she eventually improved. She had mild cognitive impairment and left hemiparesis initially. She was medically stabilized and admitted to Rehabilitation. She had resolution of the left hemiparesis. She had resolution of any cognitive impairments and was clear. She had neuropsychological screen and speech screen, and she was independent with thought processes, memory, etc. She still had some very minor balance difficulties in physical therapy. She was pretty well independent, however, for gait transfers, and mobility. In occupational therapy, she did well with ADL skills. She required some verbal queues for safety for balance. Her Dilantin level was toxic up to 23. She was at 100 mg of Dilantin t.i.d., and we backed off to b.i.d. Her last Dilantin level was 17.5. We ordered another one the day of discharge, and that is still pending. Her tracheostomy site was healing up well. She was continent of bowel and bladder. There were no other nursing issues. Her husband came in and observed and was comfortable with her care.

DISCHARGE MEDICATIONS:

1. Axid 150 b.i.d.
2. Proventil inhaler p.r.n.
3. Dilantin 100 b.i.d.

GOOD SAMARITAN HOSPITAL
Cincinnati, Ohio 45220

DISCHARGE SUMMARY

SILVEY, PAMELA

PAGE: 2

194537

DISCHARGE INSTRUCTIONS: She was to follow up with Dr. VanLoveren in six weeks. She was to see Dr. Parker as needed. Outpatient therapy for higher level balance was ordered.

STEVEN S. WUNDER, M.D.

SW/47/5647
D: 02/27/98
T: 03/02/98

(cclist)

CC: Harry R. VanLoveren, M.D.
Steven S. Wunder, M.D.
Thomas J. Parker, M.D.

MAYFIELD CLINIC

April 20, 1998

Daniel Sway, M.D.
1540 West North Bend Road
Cincinnati, OH 45224

RE: PAM SILVEY

Dear Dr. Sway:

Mrs. Silvey was evaluated at the Mayfield Clinic on April 20, 1998, in follow up to clipping of her right MCA aneurysm three months ago. She still experiences some postural dizziness which is improving. Meclazine has been prescribed for these symptoms. Her easy fatigibility is improving especially after discontinuation of Dilantin three weeks earlie. Her complaint of progressive hair loss is unexplained and she has been referred to a dermatologist.

She has been encouraged to initiate a physical exercise program and prepare to return to work the first of June.

With best regards,

Harry van Loveren

Harry R. van Loveren, M.D.

HRvL/AZ/jp/DOT 04-21-98

506 Oak Street • Cincinnati, Ohio • 45219-2552
513-221-1100 • 800-325-7787 • FAX 513-569-5279
www.mayfieldclinic.com

GOOD SAMARITAN HOSPITAL
CINCINNATI, OHIO 45220

DISCHARGE SUMMARY

SILVEY, PAM 194537

D

DATE OF ADMISSION: 1/15/98

DATE OF DISCHARGE: 2/27/98

FINAL DIAGNOSIS:
Subarachnoid hemorrhage.
Pneumonia, organism unspecified.
Adult respiratory distress syndrome.
Respiratory failure.
Essential hypertension.
Herpes simplex bronchitis.
Dysphagia.
History of tobacco abuse.
Tracheostomy for persistent respiratory failure.

PRINCIPAL PROCEDURES:
Temporary tracheostomy.
Clipping of cerebral aneurysm.
Bronchial biopsy with bronchoscopy.
Insertion of endotracheal tube.
Continuous mechanical ventilation.
Swan Ganz catheterization.

HOSPITAL SUMMARY: The patient is a 35 year old female who was found in the car unconscious after a motor vehicle accident. Her work up from the Emergency Department revealed an intracerebral bleeding and an angiogram confirmed a subarachnoid hemorrhage secondary to aneurysm. This was clipped on 1/15 and she was transferred to the ICU thereafter on mechanical ventilation. She developed significant cerebral vaso spasm as well as ARDS requiring hyperdynamic hypervolemic therapy. This included intravenous Dopamine as well as Dobutamine and Levophed. Due to inability to wean off of mechanical ventilation a tracheostomy was performed and she was continued on aggressive therapy until resolution of her cerebral vaso spasm and ARDS. Because of persistent temperature she underwent a bronchoscopy which did reveal herpes simplex in culture and this was treated with clinical resolution on Acyclovir. She was also placed on Cefepime as well as Flagyl for Acinetobacter in her sputum. Her condition gradually improved and then later weaning was instituted. She was seen by Physical Medicine and Rehab and her tracheostomy tube was removed on 2/21 without difficulty. Her Prednisone had been weaned off which had been used for the assistance of resolution of ARDS and on 2/21 she was transferred to the Rehab Unit for further therapy prior to being discharged home.

GOOD SAMARITAN HOSPITAL
CINCINNATI, OHIO 45220

DISCHARGE SUMMARY

SILVEY, PAM 194537

Medications include Axid, 150 mgs. b.i.d.; Proventil inhaler, p.r.n. and Dilantin, 100 mgs. b.i.d. Activities ad lib. Diet regular. Follow up will be arranged at the time of discharge from the Rehab Unit.

Christopher Hayner, M.D.
lb
D: 9/4/98
T: 9/7/98
cc: Christopher Hayner, M.D.

DR RICE'S PT

last name SILVEY first name PAMELA page 3 AGE

ALLERGIES: Aspirin BIRTH: 3/1

date	cheif complaint	lab tests, impress, xray	medications
7-23-93	Pt is having sinus. She's		1) Flonase 25 mg
Wt 102	feeling pressure above		daily
BP 94/62	and around eyes, and		
T 99.1	back of head. She can't		
	breathe through her		2)
	nose		2) Nasal spray
	Lungs clear		
	turbinates It 3+	inflamed & swollen	3) erythromycin 250
	pharynx 1-2+	" " "	#13(2)
	cervical nodes 1+	swollen	
	TMs N/A	Naso pharyngitis	4) Advil /
	No nuchal rigidity		Tylenol
7-27-93	Pt c/o slight fever	→ Frontal sinus	4 day
Wt 100½	H/A throwing up (2 times)	last time 6am	1)
BP 90/60	x 1 day. Sinuses are better.	Pt got sick	2.
Tp. 98.6	this morning w/ a flu like illness.	All of	3.
	her kids have had it for 2 days.		4
	Cardio: Heart rate regular and 66/min		5- Tylenol q.
	Lungs: Clear w/ no rales or rhonchi	(agree)	
	HEENT: Throat was inflamed w/	some white patches?	(no) normal
	Ears: clear w/ no fluid in	middle ear	
	Neck: no lymphadenopathy	(agree)	
	- Frontal sinus: no pain on compression		
	- Eyes: conjunctiva an sclera	are jaundiced or	inflamed. (agree)
	Nose: 1+ inflammation and	swelling, no	exudate (agree)
	She feels much better now -		
		Imp	gastro enteritis
			& Naso pharyngitis
		Rx	add clear liquid
			diet
			Aspirin

PSilvey-OH Longshore, MD-
000056

EXHIBIT
VAN LOVEREN
15
5 pages

last name SILVEY first name PAMELA page 7

ALLERGIES: ASA BIRTH: 3/1

date	cheif complaint	lab tests, impress, xray	medications
10-4-94	Pt c/o wisdom tooth		1. Orajel
95 3/4	coming - (R) upper side		2. tylenol
BP 92/56	very painful - [illegible]		
	- has several rotten teeth		
	& has a 3+ tender 1-2+ inflammed area at back upper		
	Rgt gum.		
	- wisdom tooth coming in?		
	abscess?		- Vicodin #30
	from dental caries		- amoxil 250 #30
	Frontal area		to oral surgeon ASAP
10-27-94	Pt c/o bad HA's		
wt 95	These start when she		
BP 80/60	gets off work. Can't		1. tylenol.
	sleep - just tossing + turning.		
	x 2-3 days		
	- is upset at work! is working 10 hours/day 56 hours/wk		
	Lungs clear, TMs, cervical nodes N/R		
	Turbinates 2+, 2+ swollen & inflammed		seldane/
	No maxillary sinus tenderness		drixoral/
	? Still c dental caries Rhinitis?		
	functional?		
11-4-94	Pt c/o bad pain in		tylenol
wt 99 1/2	(R) Jaw. - Pt sees		seldane/drixoral
BP 88/60	oral surgeon tomorrow. LEFT		
	Has 3+ tenderness of (L) maxillary sinus & (L) mandible		
	" 1-2+ swelling of (L) " " " " "		
	& has 2-3+ swelling & tenderness of the gum on (L) lower		warm soaks
			ASA
			Rx 1) Keflex 250 #40
			2) Tylenol #3 #2

PSilvey-OH Longshore, MD-000052

last name SILVEY first name PAMELA page 9 AGE:

ALLERGIES: BIRTH: 2/1/6

date	cheif complaint	lab tests, impress, xray	medications
12-15-94	Has started new job x 4 wks		none
wt. 97	ago – is exposed to paint fumes		
BP 90/62	and thinner fumes that		
	cause her to have HA'S, makes		adv Claritin #14
	her sinuses clogged, makes		Advil sinus Tabs
	throat burn. Needs note		
	from doctor to move to a		
	different section.		
	turbinates 2+ 2+	inflamed & swollen	
	Lungs – clear		
2-10-95			
wt 99			
BP 110/82		CC: Cold/Congestion Pro. green	

Date: 2-10-95
Weight: 99
BP:
Temp: 98.1

CC: Cold/Congestion — Pro. green; cough at night; throat sore for awhile; right ear pops

Medications: none

Increased temp. recently? Y N ? When? ____ How high? ____ — feet 1+ prolonged

PE: Lungs: clear? (Y) N Wheezing? Y N Rales? Y N
Location

Nasal Turbinates: swollen? (Y) N degree 1 (2) (3) 4
inflamed? (Y) N degree 1 (2) (3) 4
purulent exudate? (Y) N 2+

Pharynx: inflamed? (Y) N degree (1) 2 3 4
swollen? (Y) N degree (1) 2 3 4

Cervical nodes: swollen? (Y) N degree (1) 2 3 4

Ears:
canal LEFT (clear) xs cerumen inflamed purulent
RIGHT (clear) xs cerumen inflamed purulent
drum LEFT (flat) (concave) convex degree 1 2 3 4
inflamed degree 1 2 3 4
RIGHT (flat) (concave) convex degree 1 2 3 4
inflamed degree 1 2 3 4

Impression: (nasopharyngitis) allergic rhinitis otitis
Plan:

(1) Tavist D c̄ 2 Tylenol stat ES
(2) Actifed c̄ 400
(3) Vaporizer c̄ water
(4) Velbrangue 100 #8

last name Silvey first name Pamela page 16 AGE 3

ALLERGIES ASA BIRTHDATE 2/1/63

date	cheif complaint	lab tests, impress, xray	medications

Date: 8-22-96 | Time: A.M. P.M. | Who Called: Longshore | Phone: 541-4519 (H)

Patient's Full Name: Pam Silvey | Age: | To:

Medication Allergy: | PHARMACY: 8723627 Harlene

REASON FOR CALL: Re EMG results | DISPOSITION: EMG office

8-21-96 (BSH) — unable to reach

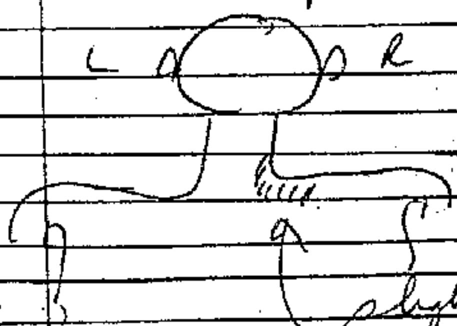
That what EMG results? 8-23-96

Who release these? spoke c̄ Harlene will

TO GOOD SAM per Dr. Kim done 8/21/96 fax results please call pt when received Silv

Rec'd by: | Handled By:

date	cheif complaint	lab tests, impress, xray	medications
8-24-96	Spoke c̄ pt. Re: EMG - normal findings FA. 11:01 pm		
8-29-96 Wt 103 BP 130/70	Here for follow-up of neck injury - feels better.	EMG of Rt arm N/R	1. Anti-inflammatory (Naprosyn)
	has splint on Rt fore arm because of tendonitis		



PAP( )
PELVIC EXAM( )
BREAST EXAM( )
BSE EXPLAINED( )
MAMMOGRAM( )
dT( )
FLU( )
PNEUMONIA( )
LIVING WILL (Y/N)

slight pain here (in upper back medium Right shoulder) area which ↑ to 1/2 + when she raises Rt arm to 180° improving [illegible]

Acute cervical strain

(Rx prn (Anaprox ND)

return to regular duty 8/30/96 — given note — Dr. Longshore had

Off 8/7 - 8/14/96

Dr. Kim 8/14 - 8/18/96

ASA

College Hill Med. Assoc., Inc.
Daniel H. Sway, M.D.
C. Herbert Schapera, M.D.
1540 W. North Bend Road
Cincinnati, Ohio 45224

Name Silvey Pamela
DOB 2-1-63
Phone #
Ins. BC/BS

M T W T F S S
DATE 8-6-97
HT WT
T P
BP 100/74
ILL/WELL RESP
CALL RET 5 DD WK
MMRTDN

C/o F/u visit from 7-30-97 Back pain, pt still having back pain & shoulder pain Tight, burning sensation middle & lower dorsal region not at lumbar region any longer.

Not better.
Taking muscle relaxer & Tylenol
Refer to rehab.
Dr. Heis / Rissover / Bathori
7-29- 8-4
8-4- 8-11-97
Ret: 8-11 if can't go to work & not seen by spec. yet.
Bathori

TE: 8-8-97

TO: Koppenhoefer
open ended Referral

NG-294a
3/97

TriHealth

☐ Bethesda North
✓ ☐ Bethesda Oak

CRITICAL CARE FLOW SHEET

COORDINATED CARE

Date 3/13/98

☐ 23 Hour Hold
☐ Clinical Pathway, ______ Day # ______
☐ Standard of Care, ______

SILVEY, PAMELA S
1 1849379-1 C35
MRN 000000194537
VANLOVEREN, HARRY R
DOB 02/01/963 01/15/9
#43

CAREGIVER SIGNATURES

INITIALS	SIGNATURE	INITIALS	SIGNATURE
[illegible]	[illegible]	[illegible]	[illegible] RN
		AV	Alisa Vittetoe

PATIENT/FAMILY LEARNING ASSESSMENT

* Further Documentation in Patient's Focus Notes

Date: ______ New Learning Needs Identified: ______ None ☐

Continuing Barriers to Learning: ______ None ☐

Previous Instructions: Retained ☐ Need Reinforcement ☐ Topics Requiring Reinforcement: ______

Signature: ______

PATIENT/FAMILY EDUCATION

CODES:

Learner
- Pt = Patient
- Sp = Spouse
- P = Parent
- R = Other Relative
- O = Other

Method
- V = Videotape
- S = Slides
- O = One to One
- D = Demonstration
- H = Handout
- TV = Cable Healthcare

Learning Need

1. Activity/Exercise
2. Advance Directives/ code status
3. Adjusting to home
4. Cardiovascular
5. Chemotherapy
6. Communication
7. Dialysis
8. Discharge
9. Equipment (specify)
10. Family communication/ visiting plan
11. GI
12. Health Education
13. Home Care
14. Isolation
15. Medication
16. Neurological Checks
17. Nutrition
18. Pain Management
19. Post - Operative
20. Pre - Operative
21. Procedure
22. Pulmonary rehabilitation
23. Psychosocial
24. Rehabilitation
25. Respiratory
26. Safety
27. Sexuality
28. Skin Care
29. Support Groups
30. Therapy/Audiology
31. Therapy/Dysphagia
32. Therapy/Enterostomal
33. Therapy/Occupational
34. Therapy/Physical
35. Therapy/Speech
36. Transfusions
37. Urological
38. Wound/Incision Care
39. Orientation to room and environment
40. Other

Evaluation
- S = States ______
- D = Demonstrates: No Assistance Needed
- DP = Demonstrates with Physical assistance
- DV = Demonstrates with Verbal assistance
- N = No Evidence of Learning (Explain)
- NR = Needs Reinforcement
- NA = Learning not Assessed at this Time

TIME	LEARNER	METHOD	LEARNING NEED	EVALUATION	INITIALS

FOCUS NOTES

DATE/TIME	FOCUS	D/A/R	DATA / ACTION / RESPONSE
0745[10]	activity	D	↑ to chair c̄ assist, gait unsteady, takes few weak steps — A
		D	"Stede Teen" from ICU here to see pt and hand writing [illegible] — A
0845	activity	D	return to bed c̄ assist — A

PSilvey-OH-Good Samaritan
000707

EXHIBIT
VAN LOVEREN
16

BethesdaTriHealthGood Samaritan

INFORMED CONSENT STATEMENT

Bethesda & Good Samaritan Sites

Protocol Title: Genetic and Environmental Risk Factors for Hemorrhagic Stroke

Principal Investigator: Joseph P. Broderick, M.D. (513) 558-3760

Co-investigators: Thomas Brott, M.D., Rashmi Kothari, M.D., Art Pancioli, M.D., Laura Sauerbeck, R.N., Edward Jauch, M.D.

Study Sites: The University of Cincinnati Medical Center and 18 regional hospitals (including Bethesda Oak Hospital, Good Samaritan Hospital, and Bethesda North Hospital). Patients will also be interviewed at home, nursing homes, or rehabilitation facilities.

INTRODUCTION

It is important that I understand the following information before I agree to be a part of this study. I will understand the goals and steps involved. I will be warned of possible dangers or things that may make me uncomfortable. I will also be warned of any other things that I may need to know about before starting the study. The information will also give me other options I have if I choose not to be in the study. I may stop being in the study any time. I am not being promised certain results. I am volunteering to be in this study. No one is forcing me. If I do not want to be in the study I will still get the standard care available to patients not in the study.

OBJECTIVES OF THE STUDY

I, Pam Silvey, agree to participate in a medical research study, the goal of which is to determine the significant environmental and genetic risk factors and the causes of intracerebral hemorrhage and subarachnoid hemorrhage. The genes that will be tested in this study are the genes for Apo-E (a gene that determines the level of blood protein that is also found in the brain), alpha-1-antitrypsin (a gene which may be related to the formation of aneurysms of blood vessels in the brain), and the amiloride-sensitive sodium channel (a gene which controls the level of salt in cells). Other stroke-related genes may be discovered in the future. If so, I may be contacted to use my tissue samples to evaluate the presence of any of the newly discovered genes.

IRB *Approved* ICS NOV 10 1997

EXHIBIT
VAN LOVEREN
17
5 Pages

This study is under the direction of LAURA SAUERBECK and the medical supervision of Dr. Joseph P. Broderick, M.D. Other professional persons who work with them as study staff may assist or act for them.

I will be one of approximately 720 subjects to participate in this trial.

FINANCIAL COSTS TO THE SUBJECT:

I understand that being in this research program will not cost me anything beyond that of the standard treatment. There will be no additional personal expense. If I have questions about my medical bill relative to research participation, I may contact Joseph P. Broderick, M.D.

DURATION:

My participation in this study will last initially for approximately one hour (including a 45 minute interview, and 15 minutes for blood pressure determination and obtaining a buccal cell sample). In addition I will be contacted by telephone at three months and six months after onset for a phone interview concerning my present state of health and independence (each phone interview will last approximately 30 minutes). If I have a family history of ruptured cerebral aneurysm, I may also be contacted at a future date to participate in genetic linkage studies.

PROCEDURES:

I am under the care of a physician. I understand that my physician, Dr. VAN LOVEREN has given permission for me to take part in this study. (If the patient is not under the care of a physician, simply enter N/A in the blank for the physician's name.)

I have been told that during the course of this study, the following will occur:

I will be asked a series of questions about my medical history and medication I may have rece taken. This interview should only take about 30-45 minutes.

I will have my blood pressure taken 3 times one minute apart.

A sample of my buccal cells (cells lining the cheek inside the mouth) will be obtained. This involves rinsing my mouth gently with water prior to having the sample obtained. Then a che brush will be inserted in my mouth and twirled firmly against my inner right cheek for 30 seconds. A second set of buccal cells will be obtained from my left inner cheek with the sam method. This procedure will be repeated an additional time on each cheek (a total of four bu brushes).

At three months and six months I will be contacted by telephone and asked questions c my present state of health and independence (each telephone interview will last approx. minutes).

RISK/DISCOMFORTS:

Possible discomforts include having my arm "squeezed" during the blood pressure read possible irritation from the cheek brush.

There may be risks and discomforts which are not yet known.

CONFIDENTIALITY:

I understand that information regarding genetic testing will not be released to any indiv including myself or my family members.

PREGNANCY:

If I am a woman and I am or should become pregnant, there is no risk to me or my fetus participation in this study.

BENEFITS:

I have been told that I will receive no direct benefit from my participation in this study, participation may help health care practitioners better understand the potential environr genetic risk factors associated with intracerebral and subarachnoid hemorrhage.

AVAILABILITY OF INFORMATION:

Any questions that I may have concerning any aspect of this investigation will be answ Dr. Joseph P. Broderick, M.D., Principal Investigator or an associate at (513) 558-376(

Records involving participation in this investigation will be held confidential. Since th clinical investigation, my records will be subject to sponsor, TriHealth Institutional Re Board and possibly Food & Drug Administration review or other governmental agenci

The TriHealth Network: I understand that Bethesda Hospital, Inc. (including Bethesda Hospital and Bethesda North Hospital) and The Good Samaritan Hospital of Cincinnat have become affiliated in a network through a new company known as TriHealth, Inc. TriHealth Network also includes other companies and health care providers. I underst my care during this admission/treatment may involve one or all of these companies/pro that everyone who participates in my care needs to have access to all of my TriHealth r

I agree that all medical records and other information concerning me which has been acqui the past or is acquired during this admission/treatment by any health care provider in the TriHealth Network may be released or disclosed as may be needed to care for me to any ot healthcare provider in the TriHealth Network.

COMPENSATION IN CASE OF INJURY:

There is a chance that I might be injured during any study in medicine or behavior. The st may or may not be the cause. It has been explained to me whether I can be treated and/or compensated. TriHealth makes all decisions case by case. This is the policy of TriHealth. understand I will not get payment for being injured. If I think the study has injured me I w Joseph P. Broderick, M.D., at (513) 558-5748. If I have any more questions about this, or being in the study, I may call Dr. V. Franklin Colón. His phone number is (513) 872-1650 is the Chair of the Institutional Review Board for TriHealth. This Board reviews research projects. It makes sure that the rights and welfare of patients in studies are protected.

RIGHT TO REFUSE OR WITHDRAW:

I understand that being in this study is voluntary. I am free to withdraw at any time. There not be any prejudice to my continued medical care if I wish to withdraw. The standard tre for my condition will still be available to me. I understand that I have the right to ask ques at any time. All questions will be answered to the best of my doctor's ability. During the s there may be significant new findings. This may relate to my willingness to continue. Thi information will be provided to me.

I have read the description of this investigation. I have been informed of the probable consequences of my withdrawal from the study. I freely give my consent to participate.

PARTICIPATION IN ANOTHER STUDY:

Is the subject participating in another study? If yes, please provide the Principal Investigat name and title of the study.

TITLE OF STUDY:

_____

_____

INSTITUTIONAL STUDY NUMBER: _____

SPONSOR STUDY NUMBER: _____

WITNESSING AND SIGNATURES:

I HAVE RECEIVED A COPY OF THIS INFORMED CONSENT STATEMENT.

1. Pam Silvey — Subject (PRINTED NAME)
Pam Silvey 2- — Subject (SIGNATURE)

2. Diana Oberschmidt — Witness (PRINTED NAME)
Diana Oberschmidt 2-1 — Witness (SIGNATURE)

3. Joseph Broderick — Approved Investigator (PRINTED NAME)
(Must Be An IRB APPROVED Investigator)
Approved Investigator (SIGNATURE) 2-

Ethnic Origin of Subject: ☐ African-American ☐ Asian ☒ Caucasian ☐ Hispanic ☐ Native American ☐ Other _____

In 1994 the Office for Protection from Research Risk (OPRR), National Institutes of Health (NIH) and the Food & Administration (FDA) established a requirement that information regarding gender and minority status be obtaine

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The following is required if subject is unable to sign or under the age of 18 years old:

Relationship to Subject (i.e. mother/father/guardian)

Family Member or Guardian (SIGNATURE)

The Informed Consent Statement should be signed by the subject (or his/her legal representative minor or unable to sign personally), the investigator, and one witness who attests that the Conse was presented and those questions asked by the subject in the presence of the witness were answ

---

Once an Informed Consent Statement is completed, a copy is required to be given to the following partic

1) original - patient's hospital record
2) copy to the patient
3) copy kept by the investigator
4) copy to the IRB Office (mail or fax 872-1549) within five (5) working days

FDA requires notation of patient's informed consent into this study be documented within the phy patient's hospital (if applicable) and office charts (located in the investigator's o

BethesdaTriHealth Good Samaritan IRB *Approved* ICS NOV 1C

Revised 11/10/97

Major Risk Factors for Aneurysmal Subarachnoid Hemorrhage in the Young Are Modifiable

Joseph P. Broderick, MD; Catherine M. Viscoli, PhD; Thomas Brott, MD; Walter N. Kernan, MD; Lawrence M. Brass, MD; Edward Feldmann, MD; Lewis B. Morgenstern, MD; Janet Lee Wilterdink, MD; Ralph I. Horwitz, MD; for the Hemorrhagic Stroke Project Investigators

Background and Purpose—To identify risk factors for subarachnoid hemorrhage (SAH) and intracerebral hemorrhage, we designed a case-control study of men and women 18 to 49 years of age (the Hemorrhagic Stroke Project [HSP]). This report focuses on SAH.

Methods—Patients were recruited from 44 hospitals in the United States. Cases with SAH must have had a ruptured aneurysm documented by angiography or surgery. Two controls, identified by random digit dialing and matched to each patient for age, sex, race, and telephone exchange, were sought for each case subject.

Results—Between 1994 and 1999, 425 patients with SAH were enrolled in HSP, and 312 cases met the criteria for aneurysmal SAH. The present analyses also included 618 matched controls. Of the 312 cases, 66% were current cigarette smokers compared with 30% of controls (adjusted odds ratio [OR], 3.73; 95% CI, 2.67 to 5.21). Cocaine use within the previous 3-day period was reported by 3% of cases and no controls (bivariate exact OR, 24.97; 95% exact CI, 3.95 to ∞; adjusted estimate not calculable). Other independent risk factors in the multivariable model included hypertension (adjusted OR, 2.21; 95% CI, 1.48 to 3.29), low body mass index (OR, 1.59; 95% CI, 1.08 to 2.35), primary family history of hemorrhagic stroke (OR, 3.83; 95% CI, 1.73 to 8.46), caffeine in pharmaceutical products (OR, 2.48; 95% CI, 1.19 to 5.20), lower educational achievement (OR, 2.36; 95% CI, 1.44 to 3.87), and nicotine in pharmaceutical products (adjusted estimate not calculable).

Conclusions—Aneurysmal SAH may be largely a preventable disease among the young and middle-aged because several prevalent risk factors can be modified by medication (eg, hypertension) or behavioral change (eg, cigarette smoking, cocaine use). The association of caffeine and nicotine in pharmaceutical products and aneurysmal SAH warrants further study. (*Stroke*. 2003;34:1375-1381.)

Key Words: case-control studies ■ cerebrovascular disorders ■ cigarette smoking ■ cocaine ■ risk factors ■ subarachnoid hemorrhage

Subarachnoid hemorrhage (SAH) and intracerebral hemorrhage (ICH) affect ≈55 000 to 60 000 patients in the United States every year.[1] The mortality rate of hemorrhagic stroke is 39% to 50%, with half of the deaths occurring in the first 2 days.[1–4] Therefore, primary prevention remains the most important means of reducing the morbidity and mortality associated with hemorrhagic stroke. Effective prevention depends on understanding the mechanisms and factors underlying the occurrence of SAH and ICH and knowing the populations that are at greatest risk.

Most SAHs are due to rupture of an intracranial aneurysm of a major artery at the base of the brain.[2] A few SAHs occur secondary to rupture of an arteriovenous malformation. Only 10% to 20% of patients with SAH have no clear structural source of bleeding by brain imaging or cerebral angiography.[2,5] However, identification of the factors leading to the formation and rupture of intracranial aneurysms remains an area of intense study because it provides the best way to develop effective prevention strategies.

The Hemorrhagic Stroke Project (HSP) is a collaboration between investigators of 4 clinical stroke centers and their surrounding hospitals, the Food and Drug Administration, and manufacturers of phenylpropanolamine.[6] Its main purpose was to examine the relationship of phenylpropanolamine

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A complete list of regional centers, hospitals, coordinators, and institutional investigators that participated in the Hemorrhagic Stroke Project is given in the Appendix, which can be found online at http://stroke.ahajournals.org.

From the Department of Neurology, University of Cincinnati, Cincinnati, Ohio (J.P.B.); Departments of Neurology (L.M.B.), Internal Medicine (W.N.K.), Medicine (R.I.H.), and Epidemiology and Public Health (L.M.B., R.I.H.), Yale University School of Medicine, New Haven, Conn; Departments of Neurology, Epidemiology, Emergency Medicine, and Neurosurgery, University of Michigan, Ann Arbor (L.B.M.); Department of Neurology, Brown University School of Medicine, Providence, RI (E.F., J.L.W.); Mayo Medical School, Rochester, Minn (T.B.); and Veterans Affairs Connecticut Healthcare System, New Haven (L.M.B.).

Reprint requests to Joseph P. Broderick, MD, University of Cincinnati, College of Medicine, 231 Bethesda Ave, Cincinnati, OH 45267. E-mail joseph.Broderick@uc.edu

Stroke is available at http://www.strokeaha.org

DOI: 10.1161/01.STR.0000074572.91827.F4

and the risk of hemorrhagic stroke in persons 18 to 49 years of age. Primary results of the HSP have been reported elsewhere.[6] The goal of the present analysis was to determine the environmental risk factors for aneurysmal SAH.

Methods

Recruitment and Classification of Patients With Hemorrhagic Stroke

Between December 1994 and July 1999, we identified patients with symptomatic SAH or ICH from 44 hospitals in Connecticut, Massachusetts, Ohio, Kentucky, Rhode Island, and Texas (see the Appendix, which is available online at http://stroke.ahajournals.org).[6] An SAH was diagnosed from clinical symptoms plus either CT evidence of subarachnoid bleeding or lumbar puncture showing xanthochromia. Eligibility criteria for cases included the following: age of 18 to 49 years, ability to communicate and complete the interview within 30 days of the stroke event, no previously diagnosed brain lesion predisposing to hemorrhage (ie, arteriovenous malformation, tumor, aneurysm), and no prior stroke. Cases were recruited in person or by telephone as soon as they were identified, provided that their personal physician approved. For the present analysis, we focused only on case subjects with aneurysmal SAH that was defined as SAH due to a documented intracranial aneurysm by cerebral angiography, surgery, or autopsy.

Recruitment of Controls

We attempted to identify 2 matched controls for each case using random digit dialing. Matching criteria included telephone exchange, sex, ethnic group (black versus nonblack), and age (within 3 years for case subjects <30 years of age and within 5 years for cases ≥30 years of age). When a perfectly matched control could not be located, we enrolled an imperfectly matched control rather than exclude the case. All control interviews had to be completed within 30 days of the case's stroke event to minimize seasonal differences in exposures.

Ascertainment of Exposure Data and Other Subject Information

Trained researchers used a structured questionnaire to obtain demographic, risk factor, behavioral, and pharmaceutical information from all subjects. Interviews were conducted in person unless the subject refused or a meeting could not be arranged within 30 days of the case's focal time.

The patient interviews included questions about medical history, including hypertension, diabetes, polycystic kidney disease, thyroid disease, menopausal status, and prior family history of hemorrhagic stroke. Social and behavioral histories included questions on cigarette smoking, alcohol consumption, illicit drug use, caffeine consumption, and education level. Because the primary focus of the HSP was the use of phenylpropanolamine and the risk of hemorrhagic stroke, subjects were also asked to recall cold symptoms, medications used to treat them, and any other medications taken during the 2 weeks before focal time. After all volunteered medications were recorded, subjects were asked if they had taken several specific medications or classes of medications (eg, aspirin, anticoagulants, diet pills).

To verify exposures, participants were asked to pick out reported brand-name cough-cold or appetite-suppressant medications from a book containing package photographs. They were then asked to produce each medication so that the exact name and manufacturer's lot numbers could be recorded. If the container was not available, a brand-name medication was considered verified if the subject had identified it in the book. Only verified medication exposures were counted in the analysis.

To determine the active ingredients in each medication, we relied on published sources.[7,8] For national brands and prescription drugs that had possible formulation changes during the study period and for generic or store-brand medications, we verified active ingredients directly with the manufacturer.

To ensure confidentiality, patients were assigned a unique number to identify them in computerized files. Paper research records were maintained in locked offices accessible only to the investigators and research staff. A certificate of confidentiality was obtained from the US Department of Health and Human Services to enable the investigators to withhold names and identifying characteristics of research subjects from persons not connected with the research.

TABLE 1. Assembly of Cohort

	n
SAH identified (December 1994–August 1999)	883
Ineligible subjects	351
Died within 30 d of stroke	208
Not able to communicate within 30 d of stroke	88
Prior history of stroke	41
Prior history of brain tumor or AVM	5
In hospital >72 h before stroke	9
Eligible subjects—HSP	532
Not enrolled*	104
Not contacted within 30 d	83
Refused participation	19
No physician approval to contact	2
Enrolled	428†
Aneurysmal SAH subjects for present analyses	312

AVM indicates arteriovenous malformation.

*For nonenrolled subjects, stroke events were confirmed to be eligible, but ability to communicate within 30 days of event was not assessed.

†Three subjects were removed from analysis: 1 had uncertain index date; 1 completed the interview >30 d after event; 1 had 1 matching control identified.

Statistical Analysis

In the first phase of analysis, we estimated the odds ratio (OR) and associated probability value for the association between aneurysmal SAH and a subject characteristic or exposure using exact conditional logistic modeling for matched sets. To identify independent risk factors, dichotomous features with $P<0.10$ for the bivariate association with SAH were considered for inclusion in a multivariate logistic model using a forward selection algorithm (with criterion for entry set at $P=0.05$). Multivariate modeling was performed with asymptotic methods. Exact logistic models were estimated by the LogXact Program, version 2.1 (Cytel Software Corporation). Adjusted models were estimated with SAS, version 8.0 (SAS Corp).

Results

The final case group for the HSP comprised 702 subjects, including 425 (60%) with an SAH and 277 (40%) with an ICH. Of the 425 cases of SAH, 312 cases met the criteria for aneurysmal SAH and represent the basis for the present analyses (Table 1).

Two controls were enrolled for 306 cases (98%) and 1 control for 6 cases. All 618 controls were matched to their cases on sex and telephone exchange. Age matching was successful for 617 controls, and ethnicity matching was achieved for 601 controls (97%). Compared with controls, cases with aneurysmal SAH were significantly ($P\leq0.05$) more likely to report lower educational achievement in bivariate analysis (Table 2). With regard to medical history, cases were more likely to report a diagnosis of hypertension

TABLE 2. Subject Features and Risk of Aneurysmal SAH: Bivariate Analysis

Feature*	Cases (n=312), n (%)	Controls (n=618), n (%)	Matched OR	P
Socioeconomic features				
Female	191 (61)	379 (61)		
Black race	63 (20)	107 13 (17)		
Age, y				
<20	0 (0)	5 (1)		
20–29	23 (7)	57 (9)		
30–39	107 (34)	213 (34)		
40–49	182 (58)	343 (55)		
Education <12th grade	67 (21)	53 (9)	3.27	<0.0001
Medical history				
Hypertension	113 (36)	130 (21)	2.39	<0.0001
Diabetes	15 (5)	39 (6)	0.71	0.35
Family history of hemorrhagic stroke	28 (9)	19 (3)	3.10	0.0003
BMI <23 kg/m²	95 (31)	132 (21)	1.71	0.001
Polycystic kidney disease	2 (1)	1 (0)	4.00	0.52
Elevated cholesterol	34 (11)	116 (19)	0.53	0.002
Postmenopausal (% women)	36 (19)	77 (20)	0.89	0.75
Thyroid disease (underactive)	6 (2)	24 (4)	0.44	0.14
Thyroid disease (overactive)	4 (1)	8 (1)	1.00	1.00
Health behaviors				
Tobacco				
Current smoker	204 (65)	186 (30)	5.07	<0.0001
Former smoker	49 (16)	161 (26)	1.39	0.17
Never smoker	59 (19)	271 (44)		
Current tobacco (average†)				
None	110 (35)	432 (70)	Reference	
<1 pack/d	68 (22)	90 (15)	3.32	<0.0001
≥1 pack/d	132 (43)	96 (15)	6.13	<0.0001
Alcohol drinks ≥2/d (average†)	40 (13)	34 (5)	2.94	0.0001
Caffeinated drinks ≥5/d (average†)	112 (37)	145 (23)	1.94	<0.0001
Exposures in 3-d period				
Cocaine‡	9 (3)	0 (0)	24.97	0.0001
Marijuana	26 (8)	23 (4)	2.38	0.007
Aspirin	39 (12)	64 (10)	1.24	0.38
Phenylpropanolamine	10 (3)	17 (3)	1.15	0.87
Anticoagulant	1 (0)	2 (0)	1.00	1.00
Oral contraceptive (% women)	12 (6)	34 (9)	0.64	0.31

*Number of subjects with missing data (cases, controls): lean body mass (1, 4); alcoholic drinks (11, 0); caffeinated drinks (8, 1).

†Average use in preceding 6 months.

‡Three case subjects used cocaine and marijuana in 3-day period; 1 case used cocaine and heroin.

(before the index stroke), to report a history of brain hemorrhage in a primary family member, and to have low body mass index (BMI; <23 kg/m²). Controls were more likely to report a history of elevated cholesterol. With regard to health behaviors and use of medicine, cases were more likely to be current cigarette smokers, to be heavy alcohol (≥2 drinks daily) and caffeine (≥5 drinks daily) users, and to report exposure to cocaine, marijuana, caffeine (in pharmaceuticals), and nicotine (in pharmaceuticals) in the 3 days before the index date.

In the multivariable model, the OR for the association with risk for aneurysmal SAH was highest for family history of hemorrhagic stroke (OR, 3.83) and current cigarette smoking (OR, 3.73) (Table 3). Other significant independent risk factors included hypertension, lean body mass, caffeine in pharmaceutical products, and less than a high school educa-

TABLE 3. Adjusted ORs for Risk of Aneurysmal SAH*

	Adjusted Matched OR	95% CI
Education <12th grade	2.37	1.45–3.87
Medical history		
Primary family history	3.32	1.54–7.12
Hypertension	2.22	1.51–3.28
Body mass index <23 kg/m²	1.77	1.22–2.58
Health behaviors		
Current cigarette smoking	3.66	2.54–5.07
Cocaine use	†	†

*311 case subjects and 614 controls subjects were included in the analysis (no missing data).

†Cocaine use was included in model, but estimates were not calculable with asymptotic methods.

tion. Cocaine use and use of nicotine in pharmaceutical products were included in the model, but estimates of OR were not calculable with asymptotic methods.

We further investigated the relationship between cigarette smoking, lean body mass, and risk of SAH. As shown in Table 2, there was a significant dose response between number of cigarettes smoked on average in the prior 6 months and risk for aneurysmal SAH. The relationship between lean body mass and risk for stroke is displayed by smoking status and dose in Tables 4 and 5, respectively. Among case subjects, smokers were more likely to be lean than nonsmokers (32% of current and 35% of former compared with 22% of never smokers). However, in our data, there was no relationship between lean body mass and smoking in control subjects (~20% had BMI <23 kg/m² in all smoking groups). Accordingly, the risk for SAH associated with lean body mass was observed among current and former smokers but not among subjects classified as never smokers (Table 4). When we examined the risk of lean body mass according to strata defined by average daily cigarette use in the prior 6 months, however, we found an elevated OR in all groups, including subjects who reported no daily use in the prior 6 months (Table 5). (This latter finding was due to the strong relationship of low BMI and stroke status among former smokers in our data.) In this analysis, the association of lean body mass and stroke was strongest among current smokers who smoked at least 1 pack daily (OR, 3.35; $P=0.05$).

Discussion

Ours is the first large case-control study to demonstrate a significant association between cocaine use and the risk of aneurysmal SAH. Use of cocaine and other illicit drugs has been reported in cases series of hemorrhagic stroke.[9–15] However, because only 3% to 4% of cases of aneurysmal SAH report exposure to cocaine, the statistical significance of such a relationship is difficult to demonstrate without a large number of cases, as in our present study.

Several biological explanations for the relationship between cocaine use and rupture of intracranial aneurysm have been hypothesized. One possibility is that the acute elevations in blood pressure associated with cocaine use cause already present unruptured aneurysms to rupture.[12,14] Another possibility is that cocaine causes the intracranial aneurysm to develop and rupture acutely because of markedly elevated blood pressure or an intracranial arteriopathy.[17]

Our study also confirms that cigarette smoking is the most important modifiable risk factor for SAH.[19–26] The OR or relative risk of SAH associated with current smoking in other case-control or cohort studies ranges from 3 to 4 with a clear dose response, as was also seen in the present study.[19–25] In population-based or cohort studies, 70% to 75% of persons with SAH have a prior history of smoking, and 50% to 60% are current smokers. Our study has the highest reported percentage of current smokers among cases (66%) because our population of cases of SAH includes only those 18 to 49 years of age, the segment of the population with the highest rates of smoking. Because 30% of the control subjects also smoke, we estimate that 45% of the cases of aneurysmal SAH in this age group may be attributed to current smoking of cigarettes. In addition, the risk of aneurysmal SAH was less for former smokers than current smokers. Thus, smoking is by far the most important preventable cause of aneurysmal SAH.

Our findings include an association between use of nicotine and caffeine in pharmaceutical products and risk for aneurysmal SAH. Pharmaceutical products containing nicotine are not known to increase risk for stroke, although a few case reports exist.[27,28] Pharmaceutical doses of caffeine in combination with phenylpropanolamine have been associated with risk for stroke in case reports,[29,30] but caffeine in coffee beverages is not associated with an increased risk for stroke.[31] None of our caffeine users were also using phenylpropanolamine. Our results must be regarded as only suggestive.

In our population, hypertension is a clear risk factor for aneurysmal SAH confirming other population-based studies.[19–21] Because 21% of the control population in this age group have a history of hypertension, hypertension is the most important preventable risk factor after current smoking.

TABLE 4. Relationship of Lean Body Mass (BMI<23 kg/m²) to Risk of SAH Overall and by Smoking Strata

	Cases			Controls			Matched OR (Exact P)
	n	Lean, n	Lean, %	n	Lean, n	Lean, %	
All subjects	312	96	31	618	132	21	1.71 (0.001)
Current smokers*	203	66	32	185	39	21	1.83 (0.05)
Ex-smokers	49	17	35	161	31	19	4.11 (0.11)
Never smokers*	59	13	22	268	62	23	1.00 (1.00)

*Among current smokers, 1 case and 1 control were missing body mass data; among never smokers, 3 control subjects were missing body mass data.

TABLE 5. Relationship of Lean Body Mass (BMI<23 kg/m²) to Risk of SAH by Average Daily Use of Cigarettes* in Prior 6 Months

	Cases			Controls			Matched OR (Exact P)
	n	Lean, n	Lean, %	n	Lean, n	Lean, %	
All subjects	312	96	31	618	132	21	1.71 (0.001)
≥1 pack	131	38	29	95	17	18	3.35 (0.05)
<1 pack	68	26	38	90	22	24	1.63 (0.79)
0	110	32	29	429	93	22	1.75 (0.11)

*Two cases who were current smokers with BMI<23 kg/m² were missing data on cigarette dose. Two cases with BMI <23 kg/m² who were current smokers reported 0 daily use on average in prior 6 months. Among subjects reporting no daily use, 3 controls were missing body mass data; among subjects reporting ≥1-pack/d use, 1 case and 1 control were missing body mass data.

Other independent risk factors in our study included a low BMI, family history of hemorrhagic stroke, and low educational achievement. The association of low BMI with SAH has been previously reported,[21,22,26] but the biological mechanism underlying this association is unclear. When this relationship was examined according to average daily cigarette use, we found an association in all groups, including subjects who reported no daily use in the prior 6 months. Of particular interest in this analysis is the observation that the association of lean body mass and stroke was strongest among current smokers who smoked at least 1 pack daily.

Other case-control studies of SAH have found that cases of aneurysmal SAH are more likely to report a family history of SAH and intracranial aneurysm than matched controls.[21,32,33] Our data also indicate that there may be a heritable component to the formation and rupture of intracranial aneurysm.[21,32,34–37] In 2001, Onda and colleagues[38] reported the results of a genome-wide linkage (104 affected sibpairs) and haplotype association study that mapped the occurrence of intracranial aneurysms to chromosome 7q11. The best evidence for linkage was detected at D7S2472, in the vicinity of the elastin gene (ELN), an excellent candidate gene for intracranial aneurysm given the importance of elastin in the structure and function of intracranial arteries. Fourteen distinct single-nucleotide polymorphisms were identified in ELN, and no obvious allelic association between intracranial aneurysms and each single-nucleotide polymorphism was observed. The haplotype between the intron-20–intron-23 polymorphisms of ELN was strongly associated with intracranial aneurysm (P=0.0000381), and homozygous patients were at high risk (P=0.002), with an OR of 4.39. These findings suggest that a genetic focus for intracranial aneurysms may lie within or close to the ELN locus on chromosome 7.

In another genome-wide linkage study of 48 affected sibpairs collected from 24 extended Finnish pedigrees, investigators found the strongest association between the presence of intracranial aneurysm and chromosome 19q13.2.[39] The region on chromosome 19 contains several loci related to cerebrovascular or cardiovascular physiology, including apolipoprotein E, CII and CI, notch 3, cardiac troponin I, and genes associated with abnormalities in cardiac conduction. A large National Institute of Neurological Disorders and Stroke–funded study to identify genetic risk factors for intracranial aneurysms, called the Familial Intracranial Aneurysm Study, is also underway in North America, Australia, and New Zealand. Further familial linkage and association studies are needed to explore the genetic basis for intracranial aneurysm.

Low educational achievement has been associated with a increased risk of aneurysmal SAH in previous studies, but ours is the first to demonstrate a statistically significant association in a multivariable model.[21,26] The finding of an association between SAH and socioeconomic status is consistent with a recent study on SAH from any cause[40] and with findings on other adverse health events, including stroke mortality,[41] ischemic stroke incidence,[42] other cardiovascular disease, and all-cause mortality.[43] Although these and other reports have firmly established the importance of socioeconomic status as a determinant of health, the mechanism for the association is not fully understood. Traditional vascular risk factors explain only part of the association.[43,44] Other important factors may include health behavior, occupational stress, access to care, and nontraditional biological events such as insulin resistance and altered coagulation.[45]

Biases that might have affected this analysis of the HSP include selection and recall bias. We adopted several strategies to reduce the possibility of bias in selection of cases, including active case surveillance and objective eligibility determination. In the 2 centers with the largest number of enrolled subjects (Yale and University of Cincinnati), we ascertained cases from all regional hospitals. However, one limitation of this study is that a large majority of cases of SAH were excluded because of early mortality or because significant brain injury did not allow a reliable interview of the potential case. For example, of the 883 potential cases, only 428 were enrolled in the study. Most cases were excluded because of death or inability to complete the interview. It is possible that these very severe cases of SAH may have a different distribution of risk factors. Thus, it is more accurate to say that the risk factors that we have identified are for less severe cases of SAH in the young and middle-aged population.

A subsequent case-control study of ICH and SAH examining all ages is ongoing in Greater Cincinnati/Northern Kentucky, 1 of the 4 participating communities in the HSP.[21,46] In this study, risk factor information from the medical records of all cases of SAH is abstracted, regardless

of whether the subjects undergo an in-person structured interview. The distribution of risk factors, as documented in the medical record, among cases of SAH who died is very similar to that among interviewed controls.[21] This latter study suggests that the risk factor data from the HSP is generalizable to all cases of SAH in persons 18 to 49 years of age.

Recall bias refers to the tendency of case subjects, compared with control subjects, to have more or less accurate recall of exposures. Although recall bias is discussed in relation to case-control studies, efforts to demonstrate that it has an important effect on measured associations have commonly failed.[47,48] In the HSP, we adopted several safeguards against recall bias, including a highly structured interview. In addition, to overcome greater stimulation for recall among cases, we used a shorter interval between the focal time and interview dates for controls.

In summary, aneurysmal SAH is largely a preventable disease among the young and middle-aged because current cigarette smoking, illicit drug use, and hypertension are 3 of the most important and common risk factors. Our study also confirms the importance of family history of hemorrhagic stroke, a lean body mass, and low educational achievement as risk factors for aneurysmal SAH.

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